THE

JOURNAL OF GAS LIGHTING.

PUBLISHED MONTHLY.

No. 52, Vol. III.] LONDON, MAY 10, 1853. [PRICE, WITH SUPPLEMENT, 2s.

TO GAS COMPANIES.

BOGHEAD CANNEL COAL.—This is the most highly bituminous coal known, and, therefore, peculiarly adapted for mixing with inferior coals in the Manufacture of Gas, for which purpose it is exclusively used. One ton of it yields 13,500 cubic feet of gas, of the specific gravity of ·775; and a burner consuming at the rate of 1 cubic foot per hour, gives a light equal to 8¼ spermaceti candles, each consuming 120 grains of sperm per hour. The light yielded by 1 ton of this coal is equal to that from 1990 lbs. of sperm candles; whereas that from the same quantity of Newcastle Caking Coal is only equal to 420 lbs.; and that from the best Wigan Cannel Coal is only 750lbs. of sperm candles. It can be shipped at any of the ports in the Frith of Forth or the Clyde.

For terms and other particulars apply to

R. W. Kennard and Co.,
Sole Agents,
67, Upper Thames-street, London.

TO Clay Retort Makers.—The Directors of the WARRINGTON GAS LIGHT and COKE COMPANY are prepared to receive Tenders for the supply of CLAY RETORTS for a period of five or seven years, from the 1st of October next.

Any information required may be obtained on application to Mr. Smith, the Manager.

Tenders, under cover, addressed to the Chairman, to be sent in on or before the 1st day of June next.

By order, C. Smith, Manager.

Warrington Gas Works, April 23, 1853.

TO Ironfounders, Gas Contractors, and Others.—The DIRECTORS of the KIDDERMINSTER GAS COMPANY are prepared to receive Tenders for the ERECTION of a GASHOLDER, 60 feet diameter by 16 feet deep.

Also Tenders for Excavation of the Soil, and Building a BRICK TANK for the same.

Also Two CAST IRON PURIFIERS, 7 feet 6 inches long, by 4 feet wide, and 2 feet 10 inches deep.

Also Tenders for RETORTS MAIN PIPES, at per Ton, from 3-inch to 6-inch diameter.

Tenders to be delivered on or before the 25th day of May instant, to Henry Everist, Gas Works, Kidderminster.

The Directors do not bind themselves to accept the lowest or any Tender.

Gas Works, Kidderminster, May 3, 1853.

TO Architects and Gas Engineers.—The DIRECTORS of the NEW ROMNEY GAS LIGHT and COKE COMPANY are prepared to receive Plans, Specifications, and Estimates, for the ERECTION of a GAS WORKS (exclusive of Mains) capable of supplying 300 burners.

Each competitor to state the sum required for his design, which design, if accepted, will be retained at the price named, and, if not accepted, will be returned, but not paid for.

Further particulars, with a plan of the ground, may be had on application to Mr. Sladden Gardner, Solicitor, New Romney, to whom the plans, specifications, and estimates are to be sent, on or before Tuesday, the 17th of May.

TO GAS COMPANIES.

PELAW MAIN COALS.—Parties requiring a supply of these first-class Gas Coals are requested to apply to Mr. J. H. Hunt, Newcastle-upon-Tyne; or to Mr. E. M. Perkins, 67, Mark-lane, London.

TO Coal Brokers, Agents, &c.—The DIRECTORS of the DEVONPORT GAS and COKE COMPANY are prepared to receive Tenders for supplying their Works with 4000 Tons of GAS COAL during the ensuing year.

Specifications will be forwarded to parties wishing to tender, on application to the Company's Secretary; and all Tenders must be sent in on or before Monday, the 16th instant. By order of the Board,

John Romans, Engineer and Secretary.

Dated May 3, 1853.

TO Gasholder Makers and Iron-FOUNDERS.—The DIRECTORS of the NEWPORT GAS COMPANY are prepared to receive Tenders for the supply and ERECTION of a GASHOLDER, 56 feet 9 inches in diameter, by 16 feet deep, with eight Cast Iron Guide Columns, Wheels, Rollers, &c., for a Brick Tank, fixed complete.

The plans and specifications may be inspected, and further information obtained, at the Company's Offices, Newport, Monmouthshire.

Sealed Tenders to be sent in on or before Saturday, the 28th instant, addressed to "The Directors of the Newport Gas Company, Newport, Monmouthshire."

The Directors do not bind themselves to accept the lowest or any Tender. By order,

Joseph Bryan, Clerk to the Company.

Newport, Monmouthshire, May 3, 1853.

COWEN'S PATENT FIRE CLAY RETORTS.

JOS. COWEN and CO.,

BLAYDON BURN, NEAR NEWCAST.E-ON-TYNE,

Were the only parties to whom a Prize Medal was awarded at the Great Exhibition of 1851, for "Gas Retorts and other Objects in Fire Clay."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire Clay Retorts in the United Kingdom; and orders for Fire Clay Retorts of all shapes and dimensions, Fire Bricks, and every other article in Fire Clay, are promptly executed at their works as above.

Also, owners of Blaydon Burn Colliery, from which "Cowen's Cannel Coal," extensively used in Metropolitan and other Gas Works, and "Cowen's Garesfield Coal," are obtained. From the latter, "Cowen's Garesfield Coke" is made, the superior quality of which is well known.

Coal and Coke Office, Quay-side, Newcastle-on-Tyne.

PATENT IRON TUBES AND FITTINGS, OF ALL KINDS AND SIZES, FOR GAS, STEAM, AND WATER.

LAP-WELDED FLUES FOR BOILERS.

GALVANIZED TUBES, SHEET-IRON, &c.

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CHURCH-HILL, WEDNESBURY,

Tubing Manufacturers from the Commencement of Lighting by Gas, and previously Contractors with the Government and East India Company for Gun Barrels, which were also first supplied by them to Gas Companies, and used for the distribution of gas.

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69, UPPER THAMES-STREET.

N.B. Every Tube is proved by Hydraulic Pressure before leaving the Works.

Price £1. 6s. 8vo, cloth boards, Third Edition,

PECKSTON'S Practical Treatise on GAS LIGHTING, in which the Gas Apparatus generally in use is explained by twenty-two appropriate Plates.—London: Hebert, Cheapside.

JAMES RUSSELL AND SONS,

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LAP-WELDED FLUES,

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Inventors and Manufacturers of

IMPROVED STEAM AND GAS COCKS,

in Iron or Gun Metal, from three-eighths to six-inch bore.

Manufacturers of every description of hand-screwing

STOCKS, DIES, and TAPS,

for Gasfitters and Engineering purposes.

Manufacturers of Coils, for hot-water and other purposes; Casing of all sizes, with flush joints, for Well-sinkers; Blasting Tubes; Buffer Tubes for Railway Carriages; Tubes for Roller Beams; Spindles, Shafts, Pendulums, Hydraulic Presses, Core Bars, Steam Gauges, &c. &c.

James Russell and Sons beg to call the attention of Engineers, Builders, Water Companies, and others, to their

PATENT ENAMELLED TUBES,

which preserve water or other liquids conveyed by them in a perfectly limpid condition; whilst the Enamel itself is as pure as the finest Porcelain, possessing the rare recommendation of being entirely free from any noxious ingredient in its composition.

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THOMPSON and CO.,

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Apply to W. C., 41, Gerard-street, Soho, London.

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Beg to draw the attention of Engineers and Managers of Gas Works to the superior quality of the Article they manufacture, both in respect of the iron employed, and the perfect manner in which it is welded; in proof of which they can refer to the testimonials of the most eminent Gas Engineers, and the experience of the principal of the large Gas Companies of the kingdom.

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A CONDENSER, formed of Cast Iron, and a SCRUBBER.

Six PURIFIERS, each 9 feet square.

Two VALVE BOXES, each enclosing four Valves for Gasholder, Inlet and Outlet Pipes, with sundry other articles.

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Tenders to be sent on or before the 24th instant, to the Company's Office, Cheltenham; but the Directors do not bind themselves to accept the lowest Tender.

Cheltenham, May 6, 1853.

WROUGHT-IRON GAS AND OTHER TUBES.

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WOLVERHAMPTON TUBE WORKS.

C. Whitehouse, the Original Inventor and Patentee of the Wrought-Iron Gas Tube in 1824, having unremittingly given his attention to the most perfect means of making this article (now so much required) for a period of nearly thirty years, begs with the utmost confidence to call the attention of Gas Engineers, and Consumers of Tubes, to the excellent quality now made at the above-named Works.

Specimens of Tubes, of any diameter, sent carriage free to any part of the Kingdom; and orders of any magnitude executed promptly, the stock on hand averaging generally from One to Three Hundred Thousand Feet, with a corresponding quantity of Fittings.

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Observe—Every article is most carefully tested by hydraulic pressure before passing to the warehouse.

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COTTAGE-LANE, CITY-ROAD, LONDON,

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N.B. These Meters are as simple and durable as the Gas Meter, and as correct as that instrument under the most careful manipulation.

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Length.	24 in.	20 in.	16 in.
Feet, 7½	10	5	40
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18 lengths 14-in. Hydraulic Main, each 9 feet long, fitted with 3-in. dip and arch Pipes, "nine" in each length; 4-in. to 3-in. Ascension Pipes to suit.

Also, Cast Iron Water Tank, at £5. 10s. per ton; a 5000 gallon Tank, with four girders and plates to support same, weight in all about 7 tons.

Apply to THE PHŒNIX GAS COMPANY, Bankside, LONDON.

CAST IRON TANK FOR SALE.

TO Gas Companies, Manufacturing Chemists, Dyers, and Others.—The DIRECTORS of the WARRINGTON GAS LIGHT COMPANY are prepared to dispose of a CAST IRON GASHOLDER TANK, 41 feet in diameter and 18 feet deep, with or without centre column and balance weights complete.

Further information may be obtained on application at the Company's Works, WARRINGTON.

By order, C. SMITH, Manager.

Warrington Gas Works, May 6, 1853.

TO Gas Companies, Gas Engineers, &c.

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A CONDENSER, WASHER, and Two DRY-LIME PURIFIERS.

CONDENSER, with thirty pipes, 4 inches in three rows of ten pipes, 9 feet high; bottom box or cistern 12 feet long, 3 feet wide, and 12 inches deep; with two water valves, connections 5 inches.

WASHER, 9 feet long, 3 feet deep, and 3 feet wide; inlet and outlet 5 inches.

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May 5, 1853.

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Warehouse in London for Cast-iron Pipes and Connections of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

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Old Meters may readily have the adjusting slide and aydraulic applied, thereby having accurate measurement assured.

Station Meters, Governors, &c., made on the shortest notice.

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HUNDRED-AND-SEVENTH THOUSAND.

ADVANTAGES OF

GAS IN PRIVATE HOUSES.

BY J. O. N. RUTTER, F.R.A.S.

A New Edition, Revised in 1853.

The sale of more than a HUNDRED THOUSAND copies is a tolerably good proof of the usefulness of this little book, which is intended for gratuitous distribution by Gas Companies. It has been very generally circulated in the metropolis, and in about three hundred of the principal cities and towns in the Empire. In America it is well known, as it is also in some of the British colonies. On the Continent it has been translated into several languages, and, in other respects, adapted to local customs and usages.

The Author is gratified by the encouragement he has received, and thankful for the success which has attended his labours. But he is not yet satisfied. In promoting the use of gas in private apartments a great deal has been done. A great deal more remains to be accomplished. In many parts of the kingdom the comfort and economy of gas-light are almost unknown. Prejudices still exist, and old-fashioned notions prevail; chiefly because no well-directed efforts have been employed in explaining and illustratiug the superiority of gas to lamps and candles. In proportion as the advantage of gas for domestic purposes are understood, will its sale increase. Let this department of gas-lighting be properly cultivated, and there will be nothing to fear from low prices. A large space, within the influence of every gas company, is still unoccupied. Those who are interested in the manufacture and sale of gas, are the persons who ought to make its benefits for lighting, cooking, and warming, better known. By these means they will receive good themselves whilst doing good to others. If difficulties be numerous and prejudices deeply-rooted—the more urgent the necessity for extra exertions, and the greater the merit when those exertions are properly rewarded. It should be remembered that, when every shop, and other place of business, have been lighted with gas, if it has not been generally adopted in private apartments, the work of the gas company has not been one-half completed.

With an earnest desire that the "Advantages of Gas in Private Houses" might still further assist the progress of gas-lighting, and the prosperity of gas companies, the Author has reduced the price from £6 to £5 per 1000 copies; 500 ditto to £3. 15s.; and any less number than 500 to 12s. per 100.

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GAS IN DWELLING HOUSES:

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This book is half the size of the preceding, and its design is the same. It is written in a plain and familiar style; showing the comfort, convenience, and economy of Gas; with some practical suggestions for so using it as to realise and combine these important benefits.

Price, per 1000 copies, £3. 3s.; 500 ditto, £1. 15s.; and any less number than 500, at 7s. 6d. per 100.

A single copy of either of the above-mentioned books will be sent, on application to the Author ONLY, by payment of the postage (2d).

*** When 1000 copies are ordered, the title, address, and scale of prices of the Company, and any other notification connected with its business, will be printed on the covers without extra charge.

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ITS PROGRESS AND ITS PROSPECTS.

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THE PRICE OF GAS.

Another edition of the pamphlet, entitled "Street-Lights," has just been printed, to meet the increasing demand consequent on its distribution where new contracts for the supply of gas to street-lamps are under discussion. It is pleasant to know that by such, apparently unimportant, instrumentality, the charge for gas to public authorities is becoming better understood, and the true commercial principle acknowledged, even if it be not in its fullest extent acted upon.

In royal 18mo., *pp.* 36, *with Illustrations, price* 1s.,

PRACTICAL OBSERVATIONS ON THE

VENTILATION OF GAS-LIGHTS.

JOHN W. PARKER AND SON, WEST STRAND, LONDON.

Black Rock, Brighton, 1853.

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NEW PELTON MAIN GAS COAL. Parties wanting a supply of these first-class GAS COALS, which are extensively used in the London and other gas works, will please to apply to Mr. JAMES JOICEY, Newcastle-upon-Tyne.

WILLIAM SUGG, Gas Engineer and Manufacturer of Patent Wet and Dry Gas Meters, combining all the latest acknowledged improvements; Brass Founder, Gas Fitter, and Lamp Contractor; Manufacturer of all kinds of Plain and Ornamental Gas Apparatus, and Contractor for the Erection of Gas Works. Designs and Estimates submitted; Station Meters and Governors of any size.

Gas Meter and Apparatus Works, 19 and 20, Marsham-street, Westminster.

BRYAN DONKIN and CO.'s improved GAS VALVES have been adopted by numerous Gas Companies in England and abroad, and their advantages and great security fully proved. Very large numbers are in use. Prices from 11s. to 14s. per inch diameter.

Their PATENT GAS EXHAUSTERS have the important advantages of a continuous uniform suction or exhanst, of having no valves whatever, of acting with an exceedingly easy motion and very small friction, and hence of taking less power than any others.

They may be seen at work at a large gas works, on applying to BRYAN DONKIN and Co., Engineers, near Grange-road, BERMONDSEY.

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Manufacture Cold Blast Retorts and Pipes of a very superior quality, and also ship good Gas and Steam Coals at Saltney, on the River Dee, and at Birkenhead.

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Cast Iron Retorts, Socket Pipes, with Syphons and all requisite Connections, Lamp Columns, Wrought Iron Tubing, Valves, Street Lamps, Sight Holes, Furnace Doors, Ash Pans, Charging and Coke Shovels, Iron Pails and Coke Barrows, Cross Bars, Fire Pots, Pumps, Iron Borings, and extra large Lamp Pillars for prominent situations, with every description of goods in use by Gas Works, in stock, on wholesale prices, at

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WHITWELL PRIMROSE GAS COAL.—These excellent Gas Coals are wrought from the HUTTON SEAM *only*, and can be shipped either at the South Dock, SUNDERLAND; or Old Harbour, HARTLEPOOL; or Brandling Drops, SOUTH SHIELDS; on application to the WHITWELL COAL COMPANY, Sunderland.

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GREAT REDUCTION IN PRICES—30 per cent. cheaper than any other Clay Retorts manufactured.

Shape.	Sizes.	Length.	Thickness.	Price at Railway Station, Blackburn.	Price per foot run, of any required length, at Blackburn.
		feet.	in.	£ s. d.	s. d.
Dee.....	12 in. by 12 in.	8	2½	2 0 0	5 0
„	14 in. by 12 in.	8	2½	2 8 0	6 0
„	16 in. by 13 in.	8	2½	2 12 0	6 6
„	18 in. by 14 in.	8	2½	3 0 0	7 6
„	19 in. by 13 in.	8	2½	3 0 0	7 6
„	20 in. by 14 in.	9	3½	3 12 0	8 0
„	24 in. by 15 in.	8	2½	3 16 0	9 6
Round.....	15 in. by 15 in.	8	2½	2 12 0	6 6
„	15 in. by 15 in.	10	2½	3 5 0	6 6
„	18 in. by 18 in.	8	2½	3 4 0	8 0
Oval Retort	18 in. by 12 in.	8	2½	3 0 0	7 6

All other sizes and shapes in proportion, to order.

References and further particulars may be obtained on application to the Patentee, Gas Works, BLACKBURN.

THE

JOURNAL OF GAS LIGHTING.

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ERRATUM.

At page 79, first col. and 9th line, for Aug. 12, 1851, read Aug. 12, 1852.

NOTICES.

Subscribers desirous of being supplied with the Supplement to the present Number, will receive it on remitting one shilling in postage stamps.

The subscription is 10s. per annum if paid in advance, or 12s. on credit, payable in two sums of 6s. each, due in June and December of each year. All subscriptions commence from the 10th of January.

All communications and orders for Advertisements to be addressed to the Editor, 32, Bucklersbury, London.

The Editor will be particularly obliged by his friends forwarding to him Notices of all Meetings, Trials, or Appeals, which it may be interesting to the Gas World to have reported.

Circular to Gas Companies.

In a Supplement to our present issue, devoted wholly to parliamentary intelligence, will be found full reports of the proceedings before committees of the House of Commons relative to three important bills, involving questions which affect, more or less, the interest of every gas company in the United Kingdom. The policy of the amalgamation of gas companies where more than one exists in any town, and the transfer of gas works generally from companies to municipal authorities, are operations which have many advocates in the present day; and, as every decision of such a tribunal as a committee of the House of Commons creates, to a certain extent, a precedent by which succeeding ones may be influenced, a record of the proceedings will become valuable.

In the Bristol case, the principle of amalgamation has been confirmed to its fullest extent; and in that of Halifax, the system of municipal trading in gas has been rejected after a protracted inquiry. In the Leeds case, the committee saw no reason why a gas company should be precluded from extending its works, because the corporation had under consideration the taking of the supply of gas into its own hands at an early period, which is virtually a confirmation of the decision of the other committee in the Halifax case. Mr. Hawksley's evidence in the latter will be perused with much interest.

The remarks upon the hydro-carbon gas at Southport, inserted in the Journal of last month, have produced a serio-comic attempt to impugn the accuracy of our statements, in the shape of a ludicrous circular, bearing the signature of the Manager of the Hydro-Carbon Gas Company; but, so far from refuting them, it virtually confirms the exactitude of our report, and gives us an opportunity of adducing other evidence in support of our statements, from the use of which we have hitherto been restrained by a rigid respect for private and confidential communications.

For the main facts of the outline we gave of the report of the gentleman sent by the Imperial Gas Company to Southport to examine into the question, we were indebted to Mr. Filer, the committee clerk of that company, and to Alexander Henry, Esq., the Secretary; though we have since learned with regret that we committed an indiscretion in giving publicity to the details, which, however, were not communicated to us with any intimation that they were not intended for publication. The high character borne by the gentleman deputed to make the investigation, for integrity, ability, and experience in the manufacture and examination of the chemical quality and illuminating power of gas, places his report above the impertinent insinuations contained in the letter of the chairman of the Southport gas committee, who, we are specially told in the circular, is a county magistrate, and, it might also have been added, brother-in-law to one of the five gentlemen who constitute the Hydro-Carbon Gas Company. This fact will explain how it happens that, on every "*im*mergency," the Southport gas committee are appealed to, and so readily grant eulogistic testimonials.

The only substantial contradiction our statement receives is, that the retorts weigh about 20 cwt. each, and not 26 cwt. The latter weight was given to us a few weeks since, as being that of some with which a trial was in progress under the direction of the Hydro-Carbon Gas Company at the Corporation Gas Works of Manchester; and, as the form and dimensions agreed with those in use at Southport, it was reasonable in us to suppose they also agreed in weight. It, however, really matters little which version should turn out to be the true one—3500 feet of Wigan cannel gas per diem may be made in an iron retort weighing 15 cwt., and 1800 feet of hydro-carbon gas is made in one weighing 20 cwt.

Will the Hydro-Carbon Gas Company favour the public with an authentic report, verified by the corporation officers, of the result of this trial? Does it confirm Dr. Frankland's and Mr. Clegg's reports, that the quantity of light yielded by the gas from a given weight of coal is *increased* by the process; or does it bear out Dr. Fyfe's reports, that it is seriously *diminished?* We shall expect a reply.

The clerk of the Southport commissioners, influenced, doubtless, by the chairman, has handed over for publication a private letter addressed to him by the Editor of this Journal, acknowledging the receipt of a copy of the last half-year's accounts. We make no complaint of this breach of confidence, more especially as it liberates us from any obligation to respect the privacy of subsequent communications with the same gentleman; and the following letters are evidence that the clerk to the Southport commissioners is fully aware of the bad quality of the gas supplied, while his employers are giving testimonials as to its purity and economy:—

Commissioners' Office, Southport, March 16, 1853.

T. G. Barlow, Esq.

Dear Sir,—

For this last three weeks we have been plagued not a little for lime, owing to some disagreement of the railway companies, and to the extensive building going on here, which has picked up what little has come to hand; indeed, so much so, that we have been obliged to burn limestone in the yard to supply our wants. We had yesterday to hand a load of Buxton lime, which has set aside and removed the impurities complained of to a great extent.

I have a quantity of test-papers for testing our gas, but am obliged to you for your suggestion, nevertheless.

I may, however, remark that it will appear to you that some improvement has taken place in our gas, for by your letter dated Jan. 6, there was from 7·1 to 9·1 per cent. of carbonic acid, whereas now there is only 5¼ per cent., with the irregularity complained of.

I must, however, say that, with the purifiers we have at work, consisting of two dry 4-feet diameter, and three trays in each division, and two wet 4-feet diameter, one 2 feet, and the other 15 inches deep, WE HAVE GREAT DIFFICULTY IN KEEPING THE GAS FREE FROM SULPHURETTED HYDROGEN.

My impression is, that the hydrogen gas takes up all the impurities contained in the cannel at the last of the charges, consequently the gas would not be free from impurity, and would contaminate the gas made at the commencement. That has been my impression some time, and therefore I thought necessary to make a few inquiries from Mr. Ginty, at the same time asking some questions relative to the cost of gas, as you must bear in mind I have had all to encounter, hitherto having had no helping hand from that quarter, but on the contrary.

To satisfy myself, and to endeavour to make gas as cheap as what they could, I put a list of queries, and enclose you a copy, but have not yet had a reply, although I have made allusion to its not being answered several times.

My intention for this last three months has been to have two more dry-lime purifiers, but defer taking any steps until I have visited several of our provincial works. I am, dear Sir, yours respectfully,

T. B. Hodgkinson.

Commissioners' Office, Southport, Jan. 1, 1853.

[Enclosure.]

Mr. W. G. Ginty.

Dear Sir,—Would you be kind enough to answer me the following queries:—

Supposing 32,000 feet of gas is produced from a ton of Boghead cannel, what do you calculate on the average per 1000 feet, for coals, charcoal, lime, and labour?

Does charcoal or coke answer best with you for producing hydrogen gas?

How long do your retorts last on an average?

What do you do with the refuse from the Boghead cannel?

What do you do with the lime refuse from the washers?

How often do you change your purifiers and washers, and how many have you at work, and how much gas is produced or passed by them in the time?

I hope you will not omit to answer me the above queries at your earliest possible convenience. I am, dear Sir, yours respectfully,

(Signed) T. B. Hodgkinson.

London, March 18, 1853.

Dear Sir,—I am obliged by your letter of the 16th, and am now enabled to tell you that Mr. Clarke's report upon your gas and its cost is so unfavourable, that the Imperial Gas Company have countermanded the preparations they were making to give it a trial, feeling satisfied that it would be a failure.

Mr. Clarke reports it to be much more costly than Wigan cannel gas, which is 12 per cent. superior to it in illuminating power; that it requires twice the number of retorts for its production, and cannot be purified except at an enormous expense in lime. All this he proves by your own figures and the facts he collected.

Mr. Ginty ought to have answered your inquiries, which are very proper ones; and, as I am contemplating taking a fortnight's holiday at an early period, I have some notion of passing it in Southport, and judging for myself. Will you let me have access to the works if I pay you a visit? As to the gas, I can get it at any shop, and see its value and purity.

Some of your commissioners must be very ignorant on gas matters, or they would not give certificates on such slender foundations. When you can send me a test of the gas taken in the town, which shall not soil one of the enclosed test-papers when exposed to a full stream of it, then I will come and judge for myself of the cost at which it is produced. I need scarcely say the test-paper should be moistened before the gas is brought in contact with it.

When you have got rid of the sulphur, you will also have got rid of the carbonic acid. It is the excess of the latter which prevents the action of the lime on the sulphuretted hydrogen.

I am, dear Sir, yours faithfully,

T. B. Hodgkinson, Esq., Southport. Thomas G. Barlow.

The fact of the last letter having remained without a reply up to the present day, is evidence that a test of the requisite purity has not been attainable at Southport.

It is said that our estimate of the cost of manufacturing Wigan cannel gas is too low, and that the materials could not be had at the prices named. We, however, know to the contrary, and should have no difficulty in making contracts at those prices.

We are also challenged to name a town with a consumption about equal to Southport, where good cannel gas is sold for 6s. 8d. per 1000 feet, and a profit of £412 realised in the winter half-year. Before accepting such a challenge, will the maker of it point out any town where the relative proportions of the consumption of the public lamps and private burners are the same as at Southport, and where the former are paid for on the basis of 6s. 8d. per 1000 feet? The price of public lights is an element in all comparisons of this nature.

THE LONDON GAS COMPANY.

The 13th of April, 1853, will long be memorable in the annals of the metropolitan gas companies, as the day upon which the pseudo cheap-gas movement met its first overthrow. The Freemasons' Tavern formed the "*champ de bataille*," where the combatants arranged themselves in eloquent array, ready for a "war of words." On one side stood the directors of the London Gas Company, strong in the justice of their position; on the other Mr. Alexander Angus Croll, "*cum multis aliis*" of that "ilk," strong in their necessities, and hungry enough to cook anything, from rotten shares to gas accounts, with a view to pick up a tolerable meal. Homer alone could have described the fury of the contest—it resembled, if we may compare small things with great, the attack of a troop of starving wolves upon a herd of deer, or the onslaught of an army of famished Goths upon the bloated luxuriance of ancient Rome. To the Crollites it was a question of life or death, for the London Gas Works formed the key of their whole position; this was, in fact, their "Hougoumont," and they stormed and raved, as if Boreas himself was a Great Central shareholder. It seemed as though they meant literally to "blow winds and crack their cheeks" in their effort to obtrude their leader upon the nauseated shareholders of the London Company. There was also a kind of "decoy duck" or "pigeon," which fluttered its wings for a moment, but quite in vain.

At the time when our last notice upon this subject was penned, we had not seen the very able report prepared by the directors to be submitted to the meeting. No honest man can peruse that document without feeling that the censure it conveys upon the author of the circular inserted *in extenso* in our last, was richly merited. "And while," say they, "your directors are anxious to avoid any expressions which may unnessarily give offence, they feel it their duty to state most emphatically to their brother shareholders, that, either from hasty judgment, or misapprehension, or some other cause, there is hardly one of those statements or comments, WHICH IS NOT EITHER ACTUALLY UNTRUE, OR CALCULATED TO CONVEY A FALSE IMPRESSION," and so thought the shareholders; for, by a majority of seven to one, and without hearing any explanation from the directors, the Croll "proposition" was indignantly rejected and consigned, we trust, to the tomb of the Capulets. We congratulate the public on this result; for there can be little doubt that a contrary decision would have been the first step towards an organisation, which would have resulted in a general reduction in the illuminating power of the gas supplied in this great metropolis, in spite of acts of Parliament, chemical referees, and all the official traps set to delude and blindfold the public.

The difficulties against which the directors of this company have had to contend may be appreciated, when it is stated that a *boná fide* and spirited competition with rivals exists in all their districts; and that when they came into office in 1848, they found the concern in debt to the extent of £230,000, for £167,000 *of which the shareholders were personally liable!* Like wise and prudent men they suspended the payment of dividends, applying their profits to the reduction of the debt, and by this means have reduced it to £86,975, substituting the guarantee of the corporate company for the individual responsibity of the shareholders. We must, however, allow the directors to state their own case in their own language:—

REPORT OF THE DIRECTORS TO THE GENERAL MEETING OF SHAREHOLDERS.

Your directors submit to you the balance sheet, and half-yearly account, showing the result of the manufacture and distribution of the company's gas up to the 31st day of December last. A statement of the profit and loss for the past half-year is annexed to this report.

During that period the proportion of gas obtained from coals carbonised in ovens is nearly one-fifth of the entire quantity. Separate accounts have been kept of the cost of manufacture by retorts, and by ovens.

The gasholder for the storage of gas, which, in their last report, your directors mentioned as being in the course of construction, was, from circumstances arising from the extraordinary condition of the iron trade, not completed in time to be made available during the past winter; and the want of it has been severely felt, and caused heavy expenses to be incurred. It is now in action. But it will still be necessary to provide further storage-room without delay, to meet the increased, and daily increasing, demand for the gas of the company. The beneficial result of laying the main pipes, mentioned in the same report, is shown in the great additional rental appearing in the half-yearly account.

As the oven system has been gradually developed, the cost of gas so made has diminished to less than two-thirds of the cost under the old system; while at the same time its illuminating power has increased. To the result of the above system the very favourable state of the half-yearly account is greatly to be attributed.

More ovens have been brought into operation since Christmas. The whole now erected, together with their supplementary apparatus, are capable of making about two-fifths of the entire quantity of gas manufactured in the course of the year.

A considerable increase, as has been incidentally mentioned above, has taken place in the business and gas rental of the company; and, with increase of business, the per centage of gas lost from leakage has diminished. It is well known to most of the shareholders that a portion of the main pipes of this company extend into districts which were long thinly and poorly inhabited, so that much of our capital was comparatively unproductive. In these districts an important change has taken place; large houses are springing up in all directions; and so great is the demand for the company's gas that the extension of its business is only limited by its means of supply. For meeting this demand in a manner highly profitable, plans have been submitted to your directors.

The execution of these, or some other schemes for effecting the same object, will not admit of delay. But, though the interests of the company are suffering, your directors feel they can take no important steps until the result of this meeting shall be known.

Mr. Lumb having arranged to resign his office of engineer from the 25th of March, your directors, not being able at the time to fill the vacancy thus occasioned in such a manner as they thought would be conducive to the interests of the company, entered only into temporary engagements for carrying on the works. They, at the same time, put themselves into communication with gas engineers of eminence, the benefit of whose services may now be obtained for the company. These gentlemen have explained to them the systems they should propose to adopt; and, in some instances, have shown the recent actual results of manufacture under their systems. There can be no doubt that, by adopting the recently improved systems in place of the old works, a very large increase of profit may be effected, without taking into account the additional benefit to be derived from increased rental. The above will form an important item in considering the propriety of entertaining Mr. Croll's proposal referred to below.

As half of the retort-beds, in one of the double retort-houses, require renewal this summer, an opportunity occurs of immediately adopting in their place recent improved retort-settings. Here, also, delay is injurious, but unavoidable, until after the present meeting.

Your directors feel called upon for some explanation as to the nature and necessity of the depreciation fund, from misapprehension existing with respect to it, and from the sanction given by some shareholders, with every good intention, but without sufficient knowledge of the matters they were dealing with, to the circular lately addressed by Mr. Croll to the shareholders, in which it is proposed to reduce the depreciation fund to £1000 in each half-year.

This depreciation fund (£1713. 9s. in this half-year) is a small per centage upon the value of the property and plant of the company, and is intended to cover such depreciation and decay as are not met by the sums yearly expended in repairs. It is contended that, as the whole plant of the company is maintained in good working order by the regular yearly repairs, a very small sum will be sufficient to cover depreciation. But your directors know by experience that gasholders, meters, mains, service-pipes, beds in which retorts are set, purifiers, steam-engines, &c. &c., do, in a series of years, though kept in good working order the whole time, become reduced to a state when either they cannot be repaired, or the repairs amount to such a sum that there is more real economy in replacing than in continuing to repair. In addition to the above, the London Gas Company have a large sum to provide for renewal of leases as they fall in. Having carefully gone over each item, your directors feel assured that the sum annually deducted from the profits for depreciation cannot prudently be diminished, and is smaller than they would wish to deduct, if the profits were larger than they are.

Profit and Loss, Half-Year ending Dec. 31, 1852.

Dr.				*Cr.*		
Expenses of manufacture, &c.		£34,348	4 8	Gas	£41,231	12 3
Repairs of mains, meters, and outdoor expenses		5,241	14 1	Coke, &c.	14,379	17 2
Direction, salaries, rents and taxes, commission on collection, bad debts, and incidental expenses		4,678	7 0	Rents, &c.	418	14 3
Repairs of gasometers, retort-houses, and houses at Vauxhall		340	0 0			
General depreciation	£1,238 0 8					
Depreciation of ovens	475 8 4					
		1,713	9 0			
Balance profit		9,708	8 11			
		£56,030	3 8		£56,030	3 8

By the accounts of the past half-year, it appears that, after laying aside the sum of £1238. 0s. 8d. for depreciation of leases and works, and £475. 8s. 4d. for depreciation of ovens, there remains a balance of £9708. 8s. 11d. in favour of the company.

The warrants for the payment of the fixed dividend or interest on the New Six per Cent. First Preference Shares up to the 31st of March, and which will become payable on the 15th instant, have been made out, and will be issued after that date.

Two directors, Mr. Wright and Mr. Vallance, and one auditor, Mr. Bratt, retire by rotation, and are eligible for re-election.

In the notice convening this meeting, the shareholders were informed that a proposal from Mr. Sheriff Croll would be brought under their consideration. The nature of this proposal has been communicated by Mr. Croll himself, in a circular addressed to the shareholders. But this circular, in addition to his proposal, contains many statements with regard to, and comments upon, the state of the affairs and management of the company. And, while your directors are anxious to avoid any expressions which may unnecessarily give offence, they feel it their duty to state most emphatically to their brother shareholders, that, whether from hasty judgment, or misapprehension, or some other cause, there is hardly one of those statements or comments *which is not either actually untrue, or calculated to convey a false impression.* In order to warn their brother shareholders against being misled by the plausible nature of Mr. Croll's proposal, your directors desired a circular to be sent to you, stating the heads of their objections to it, and requesting you to suspend your judgment, until your directors should have an opportunity of submitting to you other propositions, which appeared to them far more advantageous to the company.

In order to understand the true bearings of Mr. Croll's proposal, it may be necessary to explain some of the details of the company's business to such of the shareholders as are less conversant with them, and to show the present condition of the departments into which such business may be divided. Those departments may be classed as the commercial and engineering.

The commercial department comprises the relations of the company with its creditors and shareholders—with its customers, whether public bodies or private persons—with other gas companies—and with the public, including local and other boards and commissions. In this department all dealings with public bodies are carried on personally by the directors or by the secretary, and those with private customers, chiefly through the instrumentality of the collectors and inspectors, whose business it is to attend to all complaints of existing customers, to counteract any attempts to tamper with them by the officers of rival companies, and to obtain new customers. With respect to this department, it is sufficient to state that the debt existing in 1848, perilous to the company by its amount (£230,000), and both to the company and individual shareholders in its nature, because for £167,000 of it the shareholders were personally liable, has been extinguished; and for it a debt has been substituted safe in amount (£86,975), and in nature as being due from the corporate company only; that our relations with most competing companies are such that, should they continue, considerable relief and advantage may be anticipated; that, with respect to its customers, not being those for public lamps, the business of the company has been *nearly doubled within the last five years*, and that *at a very trifling additional cost in manufacture;* and that, as before stated, there appears to be *scarcely any limit to its increase;* that all the contracts by meter are, with very rare exceptions, *at the general price of the district, and subject to no deductions;* that *the special contracts are at remunerative prices;* that the system of collecting has been improved, and the bad and doubtful debts reduced to *below two per cent. on the rental, and arrangements made which will tend to reduce them still further.*

The engineering department comprises the manufacture of gas, the distribution of it by main and service pipes, and the measuring it by meters to the various consumers; all which is conducted upon the system and under the superintendence of the engineer, subject to the control of the directors. To understand the present state of this department, it is necessary to trace back its history for five years, when the present directors came into office. Its then state may be judged of by the following quotation from a former report:—The works were "in a state of complete dilapidation. The ordinary repairs had been neglected. The furnaces, in addition to their faulty construction, were so ruinous as to require an enormous amount of fuel. The principal flues were not only too small, but were cracked and falling to pieces; the coal store would not contain sufficient coal for the safety of the works through the winter, the walls being so bulged that it was unsafe to pile the coal; the columns of the two largest gasholders were shorter than the gasholders themselves, so as to render them partially inefficient, and six out of the eight gasholders were so much out of repair as to be more or less unsafe. No plan existed of the mains, valves, and syphons in the streets, and, to add to their difficulties, the directors had no funds at their disposal." A debt of £230,000 was pressing upon the company. It had no credit. But if the directors had applied any part of the small profits which remained, after paying the interest of the debt, towards payment of the principal, the works and business, and with them every chance of continued existence for the company, must have been sacrified. The whole, therefore, of the profits, and that whole quite inadequate even for the pressing exigencies, was applied to the works and mains; and the principal debt was met, from time to time, in a manner, then, as your directors believe, unprecedented, by the personal exertions and sacrifices of many of their brother shareholders and themselves, and, when these means failed, by the directors raising the requisite funds on their own personal responsibility. The profits were thus applied:—

"All the gasholders, except two, were strengthened and repaired effectually; the walls of the coal store were rebuilt, and the store itself enlarged. The whole machinery throughout the works, the steam-engines, and the shafting and machinery worked by them, and the purifiers, condensers, &c., were cleaned, simplified, and, in many cases, renewed. Exhausters were erected; the flues rebuilt; the furnaces and retort fittings improved, and a large portion of them entirely reconstructed. A new main was run into the heart of the districts where the consumption was greatest, and the leakage of gas diminished by placing and rearranging valves on the leading mains."

By the end of 1850, the price of gas had fallen in Middlesex from 7s. to 6s. and 5s., and in Surrey from 8s. to 4s., and since that time to 4s., in nearly all districts supplied by the company; so that though, from improved manufacture, the cost of production had greatly diminished, the profits available for renewing and extending the capacity of the works and mains remained very small. But the company's business rapidly increased; and, unless that were sacrificed, it became necessary to increase also the capacity of the works, and to lay down additional trunk mains. These more than swallowed up the available profits; but, in return, the company possesses mains of more than double the capacity of those which existed in 1848. Still want of funds prevented adequate preparation being made to meet the enormous demand, which was, therefore, supplied with inadequate means, and, therefore, uneconomically. Meantime, to contend with the low price of gas, the engineers of more prosperous companies were turning their attention to discovering and maturing other modes of manufacture more economical than the old system; one of the modifications of which was in use on our works, and on which our late engineer from time to time introduced such inexpensive improvements as suggested themselves; but the London Gas Company, as has been shown, *had no means to risk anything upon experiments.*

In 1851 a large retort-house was so shaken by the railway, that it became necessary to remove it, and the question then arose, on what system should the new works, necessary for supplying the power so lost, and obtaining additional power, be constructed? The directors then heard that, by the oven system, which had for twenty months been in use in

Paris, and had, therefore, *ceased to be a mere experiment*, gas was manufactured far cheaper than any English engineer was professing to manufacture it. The deputy governor and engineer, therefore, proceeded to Paris, and, after careful investigation, were satisfied of the value of the system, and subsequent experience has confirmed their judgment. Upon their report the ovens were erected. *The process is utterly dissimilar from that patented by Mr. Croll, as indeed is proved from the success of our ovens, when contrasted with the acknowledged failure of his.* And the directors take this opportunity of expressing their confidence in the patentee, Mr. Michiels, as well as their obligations to him for many valuable suggestions and important services. It will be understood from the foregoing statement that those parts of the works where the oven system has not been introduced have not been altered to any of the modern systems, all applicable to our retort-houses, but which have been only lately matured. It is right here to mention that by *any of these systems* the saving of space is so great that the two double retort-houses, mentioned in Mr. Croll's circular, could, if adapted to them throughout, manufacture the whole of the gas required for the company's present business. It will be necessary, as before stated, in the approaching summer, to pull down a portion of the retort-beds in these houses. These will have to be replaced on one of the improved systems, and, *whichever* may be adopted, the saving will be very great. The ovens are not adapted for such a situation; and, if they were, it would be unadvisable to increase their number at present.

Such being the state of the commercial and engineering departments, and the vacant post of engineer not being permanently filled, it remains for the directors to point out what course they consider the best for the intersts of the company.

The advantages to be derived from Mr. Croll's proposal have been placed by himself before the shareholders. He states them to be these, namely, that, assuming the gas rental to have been £40,000 for the past half-year, he will, conditionally, on the company surrendering out of their own and into his *absolute control*, their whole commercial as well as engineering business, render himself personally responsible to pay to the company £20,000 for the first year, £25,000 for the second, £30,000 for the third year of his control, and, in addition, one-fifth of increased gas rental; that the company having no further occasion for their floating capital, represented by cash in hand, amount owing for gas, &c., and goods, &c. in store, such capital may be called in and converted into money, which he assumes will be sufficient to discharge about £40,000 of the capital debt due from the company, and thus free the company from the yearly payment of £2000 for interest; and the expenses of management might be diminished to £1200. He also reduces the Depreciation Fund to £2000, stating his opinion that such is a "sufficient allowance." The directors purpose confining the following examination of Mr. Croll's figures to the first year; and their remarks, with corresponding modifications, will apply to the second and third years.

Mr. Croll's offer of £20,000 on the year, or £10,000 on the half-year, is founded on the assumption that the gas rental for the past half-year is £40,000. The object of taking Mr. Croll's proposal on the *half-year*, instead of the *year*, is for more ready comparison with the actual working of the company during the past half-year, as shown in the accounts. Now, the gas rental, strictly speaking (not including the sums received for use of meters and repairs of public lamps) is £39,003. A proportionate reduction must, therefore, be made from Mr. Croll's offer, reducing it to £9750 on the half-year. With respect to the £40,000, by raising which out of the amount owning for gas, goods in store, &c., Mr. Croll proposes to get rid of the yearly payment of £2000, it must be remembered that the goods in store stand in the company's books at their cost price, but if converted into money would realise a much smaller sum; and that from the sums thus raised the trade debts must be deducted, and also a sum equal to the profits of the last half-year. Thus the sum estimated by Mr. Croll at £40,000, would be reduced to about £25,000, and the yearly interest saved to about £1250. This is treating Mr. Croll's proposal in the most favourable manner. For looking to the contingency of the company being compelled to resume the management of its own affairs, from Mr. Croll's death, or breach of his engagement, or from his circumstances becoming embarrassed, it is very doubtful, to say the least, how far it would be justified in dealing with its floating capital so as to prevent its being made available when urgently required. Mr. Croll puts the expenses of management at £1200 for the year, or £600 for the half-year. This sum is far too small, comprising, as it does, the salaries of directors, auditors, secretary, and probably one clerk; the rates and taxes of the houses at Vauxhall, held by the company, but not connected with the works; stationery, stamps for bonds, &c.; law and general incidental expenses not connected with the manufacture, distribution, or collection, and the income tax.

With respect to the Depreciation Fund, which Mr. Croll estimates at £2000 for the year, or £1000 for the half-year, your directors have already, in the early part of this report, expressed their opinion that it cannot with safety be taken at less than £1713. 9s. for the half-year; and so soon as the ovens now erected are in full operation, which will be in a few weeks, an additional sum of about £420 will, upon the same principle, become chargeable to depreciation. The directors have also written off the profits, half-yearly, a sum of £265, under the head of repairs of gasometers and retort-houses; and another sum of £75, under the head of repairs of houses at Vauxhall. These sums are thus charged for the purpose of distributing evenly over a series of years the expense of extraordinary repairs or renovations under these heads, which either have been or are in course of being undertaken, and which could not with propriety be charged in full against the profits of the year in which they were undertaken. The sum, therefore, which Mr. Croll estimates at £1000 must be taken at present at £2053. 9s., and in future at £2473. 9s. on the half-year. Mr. Croll's offer to the company for the first half-year will, therefore, stand thus:—

For the first half-year Mr. Croll will pay....		£9750 0 0
Renewal and Depreciation Fund	£2053 9 0	
Direction, secretary, and incidental expenses (at Mr. Croll's own estimate, though insufficient)	600 0 0	
Interest on debts (if the floating capital when realised be invested, as it should be, in Consols), after deducting dividends of such Consols, about £1799. But if the floating capital be invested, as proposed by Mr. Croll, in payment of a portion of the capital debt of £86,975, then such debt would be reduced to £61,975, and the interest to	1549 0 0	
		4202 9 0
(N.B. In this and the next item the figures are taken from the accounts of the past half-year.)		5547 11 0
Half-a-year's dividend on the New Six per Cent. First Preference Shares		3476 12 10
		£2070 18 2

Your directors believe this to be a fair analysis of Mr. Croll's offer, to which they will now state their principal objections:—

1. Your directors are advised that they have no power, either with or without the sanction of the body of shareholders, to delegate the powers of the company, or to hand over its property, in the manner stipulated in Mr. Croll's proposal.

2. Mr. Croll refuses "to conduct the manufacturing affairs of the company, if its commercial operations are not also under his control." He has explained to the directors that he proposes that the shareholders shall cease to have any voice whatever in the management of the company, which is to pass into his absolute and sole control. That he is to have the sole control in everything relating to the price of gas, and in all negotiations or dealings with rival companies, and with parish or other boards and commissions; that the collectors and inspectors are to cease to be the servants of the company, and to become his servants, he alone having the power of taking or dismissing them; that all contracts are to be entered into by Mr. Croll, though in the name of the company, and the company is not to interfere; so that all the customers of the company, whether public bodies or private persons, will deal with Mr. Croll alone. Now, these are powers which your directors consider it would be dangerous to place in the hands of any individual, however deeply interested in the welfare of the company, and most dangerous in the hands of Mr. Croll, from his connection with the Great Central Company as their engineer, and with the Surrey Consumers' Company as their engineer and principal proprietor, which latter company is in active competition with our company. It is true Mr. Croll says he will submit to be bound as stringently as deeds can bind him; but the directors feel strongly that there are no means of binding a person who is the sole medium of communication between the company and its customers, and whose servants, the collectors and inspectors, will of course be in his interest, and not in the interest of the company, from using a silent and untraceable influence to transfer the business of our company to the Central, or the Surrey, or any other comsany in which, at the termination of, or even during, his contract with us, he might be interested. The directors, therefore, entreat the shareholders to pause before they desire to hazard a business obtained and kept together with difficulty, and so easily lost, by entrusting such powers out of their own control; and to consider whether the pecuniary advantages offered by Mr. Croll are such as to justify such a risk. Your directors think there are no such advantages, and that they can show—

3. That Mr. Croll's proposal, so far from being advantageous, even in a pecuniary point of view, would, if it could be accepted, be detrimental as compared to the present state of the company, and far more so as compared with its prospective state. Your directors propose to prove this by a comparison of the last half-yearly accounts, laid before this meeting, with the analysis they have given above of Mr. Croll's offer, founded upon the same gas rental, namely, £39,003. They find, on looking to their account for the last half-year, that after charging the company with all the expenses of manufacture and distribution, wear and tear, and such of the general expenses* as Mr. Croll proposes to take upon himself, there remains in favour of the company a balance of £12,771. 11s. 6d. From this sum (making out the account in the same manner as in the analysis above given of Mr. Croll's offer) must be deducted the same Depreciation Fund as is charged to Mr. Croll in the analysis, and expenses of direction, incidental expenses, &c., when the account will stand thus:—

Balance in the hands of the company		£12,771 11 6
Renewal and Depreciation Fund	£2053 9 0	
Direction and audit	530 0 0	
Secretary and one clerk	240 0 0	
Incidental expenses, stationery, and law expenses	150 0 0	
Income tax	45 12 4	
Rates and taxes on houses at Vauxhall not connected with the works	44 1 3	
Interest on debt.....	2030 14 0	
		5093 16 7
Balance		7677 14 11
Half-year's dividend on New Six per Cent. First Preference Shares		3476 12 10
		£4201 2 1

By comparing this statement, taken from the accounts of the actual working during the past half-year, now laid before the shareholders, it will appear that the net balance is £2130. 3s. 11d. greater than it would have been had Mr. Croll's proposal been accepted and in operation. And this balance is obtained, though the company is charged with £1009. 13s. 7d. for the same expenses for which Mr. Croll is only charged £600; and Mr. Croll is also allowed the benefit of a deduction from the "interest on debt," which the directors think inadmissible.

It remains to consider whether the future pecuniary benefit to arise from the acceptance of Mr. Croll's proposition will show a happier result when compared with the probable future prospects of the company.

Mr. Croll offers, *when his system shall have been completely carried out*, an additional £10,000 on the year, or £5000 on the half-year, together with one-fifth of increase of rental; that is to say, he first requires, among other things, that the two double retort-houses, at the least, shall be adapted to his system, and exhausters erected, and gasholders be provided sufficient for storing three-fourths of the greatest quantity of gas made in one day during mid-winter.

In the early part of this report it has been stated that the directors have long been in communication with gas engineers of eminence. One of them, whose reputation yields to none, has laid before the directors the actual results of the working of his system for the last six months of last year, in one of the largest gas works in the metropolis; and has made calculations, on that basis, of the savings which might be effected if the two double retort-houses were adapted to his system.

Now, in order to compare what the company may do independently of

* It is difficult to divide these expenses accurately between the company and Mr. Croll, but the estimate here made is such as the directors believe that Mr. Croll's most zealous partisans would consider fair to him.

Mr. Croll, with what he proposes to do for them, it must be assumed that the double retort-houses will be adapted to one of the modern improved systems of manufacture, and that sufficient gasholders for storage must be provided.

Mr. Croll was understood to admit, a few days since, that the loss from want of sufficient gasholders during the half-year ending Christmas last was not unfairly stated at £2000. From new gasholders, therefore, an additional profit may be expected of £2000. From the ovens, so soon as these now erected are in full operation, £1500. From diminishing the leakage of the mains, by means which the directors are immediately prepared to adopt, and from improvement in the meter department, £1000—a sum far below what the probable result will be. From adapting the two double retort-houses to the system of the gentleman with whom the directors have stated that they have been in communication, £3500. This sum also is far below the results actually obtained by that gentleman; making altogether an additional profit of £8000 on the half-year. From this sum must be deducted £1000 for interest of money to be expended in alterations and extensions, salary of engineer, &c., leaving a balance on the half-year of £7000. To this profit may certainly be added *two-fifths* of all increase of gas rental, which, if the price of gas should continue stationary, will undoubtedly be very large.

The result, therefore, of the preceding observations, in which your directors are perfectly unanimous, is, that they recommend the rejection of Mr. Croll's proposal by their brother shareholders, on the grounds—1st, that it is illegal; 2nd, that to grant to Mr. Croll the powers which he demands over the commercial business, would be a measure fraught with peril to the company; 3rd, that there is no inducement to take such a step, for that both the present and prospective sums offered by Mr. Croll are not equal to the profits at present realised, nor to those which may fairly be anticipated if the company should make such an outlay as Mr. Croll requires.

Should the shareholders adopt the views of the directors, they will take immediate steps for carrying out, under able superintendence, the improvements they have recommended; and, while they are fully alive to the responsibility they are undertaking, they have no fear of the result.

A circular has been issued by some of the shareholders who favour Mr. Croll's proposal, stating their intention to move at the ensuing meeting for a committee to consider such proposal, and also any counter-proposal of the directors. The directors at one time, themselves, entertained the idea of moving for such a committee, and only abandoned it from considering that a delay would be thus occasioned, which should, if possible, be avoided, in commencing those alterations on the works which are so much needed, and which, even now, there may be some difficulty in getting completed during the summer. They would urge these considerotions on their brother shareholders; they can have no other objection to the committee.

JOHN ROBERT HALL, Governor.

April 6, 1853.

To read Mr. Croll's circular, one would have inferred the London Gas Company was on the verge of bankruptcy:—"Your allowances and sacrifices are great; your special contracts for lighting are unremunerative; your system of collection does not preserve you from bad debts; and your works generally are, as I have shown, carried on in the most uneconomical manner. As a commercial concern, the company emphatically does not pay."—"My process and system enable me to manufacture and distribute gas on a large scale more cheaply and efficiently than any board of directors can possibly do." Such is the language in which this self-satisfied speculator indulges. Let us test its value by comparing the last balance of the Great Central Company with that of the London Company, and our readers will have an opportunity afforded them of judging for themselves of the credit due Mr. Croll's assertions. Commencing with the Great Central, we find the

15 months gas rental to have amounted to		£60,720
The cost of gas was	£30,458	
And the working expenses	9,280	
		39,738

Here the total expenses are 65½ per cent upon the gas rental, *exclusive* of the repairs of meters, and a few legacies in the shape of lawyer's bills, &c. It must, however, be borne in mind that these works are nearly new, that the rental is derived almost wholly from private consumers, that the surface lighted is less than one square mile, and the mains less than 50 miles in extent; while the gas supplied has been 10 or 15 per cent. inferior in illuminating power to that manufactured by the London Company, whose gas rental for 6 months has amounted to £41,231

The expenses of manufacture, less the coke sold, are	£19,969	
Repairs of mains, *meters*, and other outdoor expenses	5,241	
Direction, salaries, rents, taxes, commission on collection, bad debts, and incidental expenses, less rents received	4,260	
Repairs of gas-meters, retort-houses, and houses at Vauxhall	340	
		£29,810

or 72½ per cent. upon the gas rental, *inclusive* of the repairs of meters, being an excess of 7 per cent. upon the working expenses of the model Great Central Company; in other words, the increased cost of conducting an establishment on the actual system, whose operations extend from Temple-bar to Chelsea, and from Camberwell to Hampstead, and cover upwards of twenty square miles, is some £5000 more than if they were carried on upon "my process system" within the square mile occupied by the City of London; the works in the former case having been in operation upwards of twenty years, a large portion of their rental being derived from public lamps, with three competing companies everywhere, and in some cases four, and supplying gas of an irreproachable character.

No event of the last four years has struck a heavier blow at the low priced gas speculators than the failure of the Vauxhall "foray." It has taught them a lesson they will not easily forget, and must retain them within the area of their present operations, while the principle, whether at the present prices of coals, freights, labour, &c., 12 candle gas can be manufactured at 1s. 9d. per 1000 feet, as measured by the consumer's meter, is tested by experience.

THE GREAT CENTRAL DIVIDEND.

MR. CHAIRMAN DAKIN'S assurance must have been taxed to its utmost stretch when he deliberately told his constituents, at their general meeting of the 29th ult., that "he and his brother directors had never met them under more cheering and encouraging circumstances;" although he had to end with an announcement of a reduction of 25 per cent. on the dividend, notwithstanding "the added revenue of the last year had been considerable, something like £12,000." How com s it, then, that the dividend has fallen in the same proportion s the revenue has increased, if the report and the chairman's explanations be true? Such is not the ordinary result o increasing prosperity; and the conclusion is irresistibly forced upon us, that the dividend has fallen, not because the revenue has increased, but because the debentures being all issued and the shares paid up in full, there was no fund from which money could be taken for the payment of a large dividend, and that the next one will be smaller still. We have ever predicted that this would be the ultimate issue of the Dakin "system" of paying dividends out of capital; and, if it is any satisfaction to the shareholders to have had 2¼ years' dividend, at the rate of 10 per cent. per annum, they must bear in mind that they have had 2¼ years' wear out of their works and plant, without making any reserve for their depreciation or reproduction. For the future, however, it is proposed to set aside £1200 a year for this purpose; and, admitting Mr. Dakin's assertion, that the consumption of last year was 220 million feet, to be true, the income is £44,000, the expenditure, including interest on debentures and income tax, will be £34,358, leaving £9642 surplus, or a fraction over 6 per cent. on the share capital of £150,000, which may be the future dividend, so long as they can contract for the manufacture of gas at 1s. 9d. per 1000 feet, delivered at the consumers' houses. How long this may be the case is another question, into which the time is yet scarcely come for us to enter.

THE ELECTRIC POWER AND COLOUR COMPANY.

WE perceive that the electric light project has not only begun to assume a tangible aspect in the shape of a real company, but has also considerably modified its contemplated line of operations. The idea of "lighting the streets with electric lamps" has very wisely resolved itself into the more practicable notion of lighting "Public buildings, bridges, lighthouses, diving-bells, mines," &c., in fact, into almost exactly the specific purposes for which we declared it likely to be useful in our last observations upon this subject. Moreover, we now find that the electric fluid is to be employed for the "desulphurisation of coke, and the production of a 'bleaching fluid'"! The former of these is a rather doubtful affair; but the latter has clearly been the offspring of our remarks upon the decomposition of common salt.

We are told that amongst the colours to be obtained by the new company, there are "seven blues, five yellows, two browns, two whites, one scarlet, and one green"; but we rather suspect that, in the single instance of the last, the produce of the company is underrated; as many "greens" will most probably be obtained before the share list is filled up.

Nevertheless, the concern is most respectably got up; and we feel that the directorate is, at all events, a sincere and honest assemblage of gentlemen. So long as such names continue attached to the company, there is no fear that the

electric fluid will be employed in "cooking accounts"; and this, as times go, is a very considerable recommendation. Though not very sanguine, we will watch the result with interest.

Communicated Articles.

THE CHEMISTRY OF GAS LIGHTING.

(*Continued from page* 78.)

Our remarks upon the purification of coal gas by metallic oxides generally, may be said to finish, in a practical sense, with the oxides of iron already mentioned. True, indeed, patents exist for the employment of the oxides of manganese, zinc, copper, and lead; but these are nowhere in operation, and may, consequently, be passed over in silence. A few of the metallic salts are in use, as we have before stated, for arresting ammonia, such as the chloride of manganese, and the sulphates of iron, copper, and lead; but their employment is extremely limited, nor do they purify the gas altogether from sulphuretted hydrogen.

We cannot, perhaps, therefore conclude this part of our subject better than by referring to the action of sulphurous acid as a purifying substance. No patent exists, or can exist, for the employment of this agent, though Mr. Croll has claimed it in one of his last specifications. As, however, its use was published long before the date of his patent, it is needless to say more on this head.

The difficulties connected with the employment of sulphurous acid, either in solution in water or in its gaseous state, are such as apparently render its application impracticable on a large scale, though nothing can be more complete as a laboratory experiment, or as a theoretical deduction. And here we may, perhaps, be permitted to offer a paradoxical conclusion, which, however, will be found to bear the test of experience: the better a manufacturing process succeeds on the small scale, the worse it will commonly succeed on the large. The theoretical action of sulphurous acid is not only very simple, but admits of the most happy illustration. Thus, when to a solution of sulphurous acid in water sulphuretted hydrogen gas is added, a mutual decomposition ensues; and, if the quantities of the reagents have been employed in atomic proportions, no trace either of sulphurous acid or sulphuretted hydrogen will be found in the mixture. In fact, the hydrogen of the sulphuretted hydrogen will be oxidised and converted into water, the sulphur will be precipitated as pure sulphur, and the sulphurous acid will become converted into a new acid of sulphur, called, from its composition, penta-thionic acid, after the two Greek words signifying "five" and "sulphur."

The following diagram exhibits the change:—

Composed of			Products of Decomposition.
5 atoms of sulphurous acid.	Sulphur .	5	1 Penta-thionic acid.
	Oxygen 10 or	5	
		5	5 Water.
5 atoms of sulphuretted hydrogen.	Hydrogen .	5	
	Sulphur	5	of Sulphur precipitated.

In spite, however, of the seeming simplicity of this system, it is nowhere in use at the present time. We now, therefore, pass on to a consideration of the other residual products of gas works, and arrive at

COAL TAR.

Perhaps no subject in the whole range of gas engineering has received one-half the attention which has been conceded to coal tar; and, if we are at length beginning to learn its real value and proper application, it is not until thousands upon thousands of pounds have been spent in discovering its useless properties. Thus we at last know that it is practically worthless for making gas; and, perhaps, no knowledge possessed by the human race has cost more money than this.

To convert coal tar into gas has been a kind of fixed idea or monomania with schemers generally; a sort of north-west passage, or philosopher's stone; and, as it usually happens that "fools rush in where angels fear to tread," the largest and most costly experiments have been put into operation by those who were altogether ignorant of the subject. Not that these alone were deluded by this fascinating object—they merely plunged into the flood, whilst wiser men waded near the brink; but all were equally deceived; nor is there a gas engineer of any eminence in the present day who has not at one period or other been led away by this *ignis fatuus*. It is, indeed, precisely one of those things which are capable of misleading the most prudent, and, at the same time, of exciting almost to frenzy the ardour of the inexperienced and enthusiastic. The prize seems always just within reach—the goal within sight, and the triumph *all but* complete. Who that has experimented with coal tar has not fifty times cried out "Eureka," or who has not oft and oft gone to bed brimful of successful visions, only to waken in the morning and sigh over the faithless phantom of an excited imagination? For more than thirty years coal tar has been twisted and tortured in every way to give up its latent store of gaseous luminosity. It has been distilled at high heats and low heats; with steam and without steam; with coke and without coke; with the wholly spent charge of coal and with the half-spent charge; with iron wires, hoops, and chains; with scrap iron, charcoal, coals, brickbats, lime, clay; and, in fact, with everything at all likely to assist in its decomposition, and give rise to that all-desired conclusion—the economical production of illuminating gas. At length we find, after an enormous expenditure of time, talent, and money, that practically the thing cannot be done to pay, consequently it cannot be done at all; and countless as have been the machines devised to obtain perpetual motion, we question much whether they greatly exceed the different forms of apparatus invented to utilise coal tar. A glance at the records of the Patent-office during the last twenty-five years would astonish many; for, though not one single patent or project of this kind has succeeded, yet the sealing-wax upon the specifications alone would furnish gas enough to burn out "a Norwegian winter." Yet so confident of success have the great bulk of these patentees been, that few have limited the amount of their anticipated profits within a sum sufficient to discharge the national debt. We will not attempt to mention even the names of these inventors, and still less to give a recapitulation of their specifications. It is enough that their name is "Legion."

One of the earliest labourers at this "stone of Sisyphus," and also one of the latest, was Mr. George Lowe, of whom it is superfluous for us to say that he has few equals in respect to talent, science, practical knowledge, and inventive power. Uniting a thorough acquaintance with gas engineering, to an innate perception of the whole chemistry of the subject, Mr. Lowe could scarcely have failed had success been attainable in this his favourite project. It is, therefore, a striking commentary upon the whole scheme, when we find a person of Mr. Lowe's vast experience, after nearly thirty-five years of persevering labour, at length definitively convinced of the utter hopelessness of his long-cherished idea. Mr. Lowe's first experiments, on a tolerably large scale, appear to have been made in the early part of the year 1818, or about the month of March; for we find in "Tilloch's Philosophical Magazine," for the month of November in that year, a paper by Mr. G. Lowe, "On purifying Coal Gas, and increasing the quantity produced from a given weight of coals," respecting which latter condition we extract substantially the following passage:—"First, a very great increase of gas is obtained in comparison to the old method, by passing the essential oil, tar and water of crystallisation, through iron turnings, or any oxidisable surfaces, by which the two first are nearly all *converted into gas*, and come over with the hydrogen of the latter, which has been liberated at the expense of the iron turnings." The description of the apparatus proves that the iron turnings were placed "within the body of the retort," and occasionally substituted by "scraps of tin, charcoal," &c.

In January, 1820, we find Mr. Lowe again publishing in "Tilloch's Magazine," and apparently with an increased opinion of the advantages to be derived from the decomposition of tar; for in a footnote we find the following:—"Dr. Thomson, in his 'Experiments to determine the Composition of the different species of Pit Coal,' did not succeed in obtaining good gas from tar, as the gas yielded too little light to make it worth while to prosecute such experiments further. Whereas," says Mr. Lowe, "in my own apparatus, we daily decompose the tar, and produce a light equal to any oil gas." It must not be forgotten, however, that Mr. Lowe was operating on a comparatively small scale, and with tar this makes all the difference; hence we find that he still holds the same language in "Tilloch's Magazine" for April, 1821; where, speaking of the low specific gravity of the latter portion of the charges of coal gas, he proposes to remedy this by "the tar converted into gas, which, for the last year, I have found very practicable, and which will soon be heard of on a very extended scale," &c.

Now, from authentic statements at present in our possession, we know that this latter assertion of Mr. Lowe was verified the next year; that is to say, in the year 1822, when 5 beds, or 60 retorts, were put in action at the Curtain-road station of the Chartered Gas Company, for the express purpose of decomposing the tar, so as to maintain a uniform quality of gas throughout the whole charge. In each setting there were placed five retorts, two above and three below, of which, from their position, the two upper ones were much hotter than the lower three; and, consequently, better adapted for the decomposition of tar, which, as we shall show by-and-by, absorbs a vast amount of latent heat in assuming the gaseous state. The two upper retorts in each bed were provided with a conical-shaped opening in their upper surface, about eight inches in diameter, reduced to five or six inches at the mouth; this vessel had affixed to its upper end a tube of the same diameter provided with a cap, for the facility of cleansing it out, and furnished with a lateral opening, into which a syphon pipe and funnel were fixed, so as to permit the passage of tar down into the retort during the process of distillation, which tar fell upon the partially carbonised coal near the further or closed end of the retort, and was consequently driven, in the state of vapour with the gas then arising from the coal, over the incandescent surface of the charge, after which it entered the exit pipe leading to the hydraulic main; which exit pipe was constructed in some cases to open upwards, as in common gas retorts of the present day; and in others to open downwards, as in Henry's

retort for the decomposition of rosin. The charges were six-hour charges: and the tar was begun to be run into the retorts at the middle of the charge, or three hours from its commencement. Thus, out of 60 retorts, 24 were employed during half the charge to decompose tar; and these kind of settings continued in practical operation for about twelve months; and that no available means to carry this idea out in practice were lost sight of, is rendered certain, not only by the fact that the scheme was in the hands of a most talented and experienced individual, but also from the circumstance that ordinary difficulties were completely overcome: thus, for example, when it was found that a descending pipe from the retort to the hydraulic main was useless, an ascending pipe of large dimensions was employed with effect, and there is at this moment a large descending pipe and hydraulic main buried in the ground at the Brick-lane station, completely filled with asphalt, or consolidated pitch. The drawings we may give in a succeeding number. At present it is only necessary briefly to recapitulate the precise principles of this process, whereby, according to Mr. Lowe, instead of a *minimum* quantity of gas of a specific gravity of ·440, which could be obtained by the method then (and still) in use, he procured a *maximum* quantity of specific gravity from ·550 to ·600. The leading feature of this great improvement was made to depend upon "being able to obtain a uniform quality of superior gas during every hour of the charge;" and this was effected by "the introduction of coal tar through a syphon pipe, during the last three hours of the charge," or, in other words, when the richest of the gas had been separated fron the coal.

On a small scale, at Derby, this process had answered admirably, and "produced a light equal in brilliancy to any oil gas! To the truth of which," says Mr. Lowe, "many scientific friends can bear witness," &c. How did it answer, then, on the large scale at the Chartered Gas Works, under the guidance of Mr. Lowe, where every facility and advantage existed for securing a perfect result? The best reply to this query consists in the eloquent fact that it was abandoned at the end of twelve months and so remains at this moment.

Nor are there wanting circumstances which, in a theoretical point of view, demonstrate the absolute folly of attempting, at such a stage of the distillation of coal as is here implied, to decompose tar. The very element which should be wanting is then present in greatest quantity, and cannot fail to produce its inevitable effect upon the product. It is well known that hydrogen gas, more than any other substance, has the power of preventing the decomposition by heat of every form of hydro-carbon. Consequently, when the vapour of tar, which consists entirely of hydro-carbons, is passed over the incandescent coke or coal above alluded to, and at that moment evolving hydrogen gas, a state of things results every way opposed to the possible success of the end sought after. The tar, in fact, is simply distilled in an atmosphere of hydrogen, and thus preserved from igneous decomposition, exactly in the way so beautifully put in practice by Price and Co., in the distillation of oils and fats for making candles. That any one should have sought to effect the conversion of tar into gas by such a process more than thirty years ago, is of course very excusable, considering the ignorance of even scientific men at that time upon the subject of gas manufacturing; but the revival of so hopeless a subject, with our present enlarged views of the hydro-carbon compounds, can scarcely be too severely criticised and condemned.

It would appear that the conservative power of gases over each other, and over vapours, is closely allied to their diffusive power, or tendency to mingle together: the "diffusive power" being, according to Professor Graham, somewhere in the ratio of the square root of the difference in specific gravity between the gases which mingle; that is to say, where one gas is very heavy and another very light, this tendency or diffusive power is very great; but between two heavy gases or two light gases, the diffusive power is small; and it becomes almost *nil* with gases of the same specific weight. If, therefore, we assume the conservative power in question as equal to the diffusive power, we have at once an expression capable of being represented, and which explains the peculiar activity of hydrogen gas. Thus, as hydrogen is about 15 times lighter than air, and the vapours of tar probably 7 times heavier, the tendency to preservation would be the square root of 22, or 484; whereas, had nitrogen been employed, the tendency would have been the square root of 7, or 49 only. From whence it is manifest that for the decomposition of tar, no other gas or vapour is so well fitted as its own; and this serves also to explain why the boiling point of any liquid is greater under the pressure of a column of its own vapour, than with any other gas or vapour whatever. Clearly, then, if we wish to convert tar into gas, it must be used as dry as possible, and alone. And this brings us to the more modern attempts at the decomposition of tar; but prior to entering on which it becomes necessary to say a few words on pyrogenous products generally.

(To be continued.)

ON THE INCREASED STRENGTH OF CAST-IRON, PRODUCED BY THE USE OF IMPROVED COKE.

By W. Fairbairn, Esq., M. Inst. C.E.

At the Institution of Civil Engineers, on Tuesday, March 1, a highly interesting paper on this subject was read by Mr. Fairbairn: it commenced with a communication from Mr. Crace Calvert, on the subject of an improved system of depriving the fuel, whether used in blast furnaces or in remelting cupolas, of the deleterious substances by which the quality of the iron was deteriorated; or of the adaptation of the system to blast furnaces, when using coal for smelting iron ores.

The object was chiefly to point out, what were believed to be, the causes of the inferiority of iron in many works, apart from the varying qualities of the ores.

These were stated to be the introduction and application of the hot blast, which had enabled the ironmaster to reduce into cast and malleable iron, a very large per centage of cinders, slags, and other impurities, containing large proportions of silicate of iron, sulphur, and phosphorus, all of which tended to destroy the tenacity of the metal, and to render it either "red short" or "cold short"—and also, when sufficient attention was not devoted by those who were intrusted with the regulation and charging of the blast furnaces to the chemical composition of the ironstone, by which the relative proportions of the flux and fuel employed in its reduction should be regulated; the chemical composition of the limestone, or the coal not being sufficiently known, these materials often varying in quality as much as the ironstone itself;—and the iron-smelter was enabled to tell, with certainty, the quality of iron which this furnace would produce; instances had occurred, where a siliceous ore had been used for three or four hours successively, and then at once it had been replaced by an aluminous and sometimes by a calcareous ironstone, without the change being made in the proportions of limestone, or coal, which was evidently required by the different qualities of those ores.

The following analysis exhibited the different quantities of silicium existing in cast iron:—

White crude.	Monkland.	Coltness.	Eglinton.	Dalmellington.
0·18	1·53	2·69	3·13	4·12

The injurious action which an impure fuel had upon the quality of the iron was particularly alluded to; and the necessity of removing the sulphur from the coal, or coke, when employed in the blast furnaces, before it could be imparted to the cast-iron during the process of smelting, was strongly enforced. The difference in the quality of iron smelted with coal, and by the application of a process which had been recently introduced by Mr. Crace Calvert, of Manchester, compared with iron smelted in the ordinary way, was exhibited in the following analysis:—

PROPORTIONS OF SULPHUR.

Eglinton pig-iron.	Melted in the cupola with ordinary coke.	Melted with improved coke.
0·336	0·281	0·191.

The following table showed the improved quality of iron, after the application of the chloride of sodium in the blast furnace; by which the proportion of sulphur had been diminished:—

Monkland without chloride.	Monkland with chloride.	Dalmellington without chloride.	Dalmellington with chloride.
0·350	0·150	0 956	0·218.

And the increased bearing weight of 1 in. bars, cast from these irons:—

579°	.....	627°	.....	487°	.....	556.°
576	.....	655	.....	456	.....	525
	.....		.....	487	.....	544
	.....		.....	470	.....	532
	.....		.....		.....	569

These improvements were described to have been effected, at a very small cost, by the following simple process. If the blast furnace was worked entirely with coal, chloride of sodium was added with each charge, in proportion to the quality of the ore and flux employed; but a better result was produced if the coal was previouely converted into coke, and an excess of the chloride was used in its preparation, in order to act on the sulphur of the coal and of the ore, should any be found therein; and a greater improvement was manifested in the quality of the iron when only coke so prepared was used in the blast furnace.

The coke, so purified, emitted no sulphurous fumes when taken out of the coke oven, nor, when extinguished with water, did it give off the unpleasant odour of sulphuretted hydrogen, nor was there any sulphurous acid gas liberated during the operation of smelting iron in the cupola, or in raising steam in the locomotive boiler, by coke so prepared; and it was stated that these decided advantages were gained, in some cases, at an additional cost of only 1d. per ton of fuel.

The chemical action of the chloride of sodium was thus described:—When coal was first subjected to heat, in a coke oven, the bisulphuret of iron, contained in the coal, was decomposed into sulphur, which latter was distilled, or burned, and also into proto-sulphuret of iron, which remained in the mass, and was acted upon by the chloride of sodium, as it was volatilised at a red heat; thus chloride of iron and proto-sulphuret of sodium were produced. Then a second chemical re-action ensued: the proto-chloride of iron was decomposed into a sub-per-chloride of iron, and the chlorine gas, thus liberated, re-acted on the sulphuret of sodium, giving rise to chloride of sodium and to chloride of sulphur, which latter was disengaged—so that the prepared coke contained less sulphur than the ordinary coke; but admitting even that a small portion remained, it would be in the state of sulphuret of sodium, which would not yield any of its sulphur during com-

bustion, but passed into the cinders of the blast furnace, or of the cupola, and into the ashes of the fire-box in the locomotive. Thus preventing the injurious effect of the sulphur on the fire-bars and the copper of the fire-box, and on the brass tubes of the boiler of the locomotive, and the sulphur, thus fixed, did not enter into combination with the iron, preventing crystallisation during the process of smelting, and giving greater tenacity and closeness of texture both to the cast and to the malleable iron.

The second part of the paper gave the result of a series of experiments, which had been made by Mr. Fairbairn, upon trial bars 1 inch square, cast from iron melted in the cupola, with coke prepared by the process of Mr. Crace Calvert, and exhibited specimens of the iron so prepared, when the closeness of texture and the absence of the honeycomb appearance, prevailing in the iron cast with the ordinary coke, was clearly demonstrated. The mode of experimenting was described, and the results were given very elaborately, and it was shown that the average increase of strength was from 10 to 20 per cent.

Taking the mean of the whole experiments, the following conclusions were arrived at:—

The mean breaking weight of the bars per square inch, melted with the improved coke, was	515·5lb.
Ditto Ditto with ordinary coke	427·0lb.=88·5lb.

in favour of the castings produced from the improved coke, or in the ratio of 5 : 4.

The experiments on the bars smelted with the improved coke, indicated iron of a high order as to strength, and might be considered equal to the strongest cold blast iron; the metal appeared to have run exceedingly close, and exhibited a compact granulated structure, with a light grey colour.

Correspondence.

GAS-LIGHT IN COTTAGES.

Sir,—The following information appears to me of sufficient importance to entitle it to a place in the Journal of Gas Lighting. Your readers will have no difficulty in understanding why these facts are interesting to me; and I am not without hope that a knowledge of them might operate as a stimulus and an encouragement to others. It is not in small towns only that the use of gas in dwelling-houses has not received the attention it deserves. In all towns where gas is manufactured, and in every street and road where there are mains for conveying it, efforts should be made to employ the mains profitably. In looking about for customers, in thickly populated districts, and in expecting to find them only in such localities, we are not doing the whole of our duty, however well a part of it may be performed. I know of no reason why gas light should not be as acceptable, as useful, and as economical to the artisan and the labourer as it is to their neighbours. Nothing of permanent value can be obtained without some kind of exertion. Whatever is really good is worth the labour bestowed upon it. Let me commend this subject to the consideration of those who have not before thought about it sufficiently; at the same time reminding others, who begin to feel and to understand its importance, that a knowledge of the best means of increasing the sale of gas is quite as necessary to good management, as that of its production and distribution. J. O. N. R.

Black Rock, Brighton, May 6, 1853.

Todmorden, Lancashire.—The Gas Company was established in 1848, and began to sell gas in 1849. There are at this time, say, 870 meters at work upon the mains, and of that number 646 are in cottages, the rents of which vary from £2. 10s. to £6 per annum. The fittings are provided by the landlords, or tenants, of the houses; the company laying mains and services. The rent-charge for the use of the meters is ten per cent. on their cost. The price charged for gas is 6s. per 1000, and the average rate of consumption in the houses of the working classes is, say, 2000 cubic feet per annum. The accounts of the company exhibit results which are *very satisfactory*.

Perhaps there is no other instance in which so much has been done, in so short a period, to enable the industrious classes to feel the benefits of gas-light in their dwellings. Is it not an example worthy of imitation? The Secretary to the Todmorden Company is Mr. John Horsfall.

A HYDRO-CARBON VICTIM.

Sir,—I take the liberty of addressing you, and soliciting the favour of your influential interest in promoting my welfare, should anything in the gas line come under your notice that might be of service to me.

I succeeded my father, at his decease, in the management of the —— works, but was led to resign my situation in consequence of the proposals made to me by the hydro-carbon gas patentees, which I considered at the time would better my condition; but, alas! it turned out a poor speculation.

On my arrival in Manchester, they placed me in one of their works where they were contracting to supply an extensive printing establishment at 2s. 3d. per 1000 feet, with 20,000 feet per diem. They were working 12 retorts over 4 fires, but could not make the requisite quantity of gas; and we were, consequently, obliged to take gas from the town gas works, for which they had to pay 4s. 3d. per 1000 feet. Indeed, upon the whole, the gas was costing nearer 4s. 6d. than 2s. 3d., their contract price. I found it was so bad a speculation that there was no prospect of their lighting the town, of which they had promised me the situation as manager superintendent; and, though I could have made some improvement in their mode of setting retorts, they objected to allow of any alterations unless suggested by themselves, so that I thought it better to give the concern up. H. W. G.

March 10, 1853.

TRAPS FOR THE UNWARY.

Sir,—Some weeks since, an alderman of the City of London, himself a stockbroker, took an opportunity in the Court of Aldermen to denounce the practices of a certain class of hangers-on about the Stock Exchange, by which the credit of the members generally suffered; but he overlooked another abuse of the same character, for which, I hope, a remedy may be found.

The neighbourhood of the Royal Exchange abounds with advertising brokers, upon whose exhibition boards are marked the quotations of the various securities in which they are operators. Many of these are often of a very dubious character; and most of those for which customers are sought, are quoted at very exaggerated prices. The scheme is to give them a fictitious value, which may induce inexperienced individuals to purchase at a lower rate, under the impression that they are getting a bargain. I copied the following this morning from the board of one of these gentry:—

For Sale.		Paid.			Price.		
100 Tottenham and Edmonton gas shares		£3	10	0	£4	5	0
100 Surrey Consumers'	do.	10	0	0	11	10	0
40 Great Central	do.	10	0	0	14	12	6*
£350 do.	Debentures	350	0	0	355	0	0

Now, it is notorious that none of the above shares are saleable at the prices annexed to them, and the quotations are, therefore, purely fictitious. Civis.

London, April 9, 1853.

MR. LEWIS THOMPSON ON THE ILLUMINATING POWERS OF GAS IN THE METROPOLIS.

Sir,—Having worked up the directors of the Great Central Gas scheme into that state of frantic excitement which is vulgarly denominated "horn mad," I consider it necessary to find an asylum in another part of your columns for the record of their sayings and doings, as these have now evidently assumed a form which may be amusing, but is no way instructive to the world at large; unless, perhaps, as an example to deter others. Hence, I send with this a separate article for their especial benefit.

That these directors owe me a large debt of gratitude, I very well know; and more especially their veracious chairman, who has, indeed, long since appreciated my advice, "not to attract public attention to a character which will pass without censure, only whilst it passes without observation;" an aphorism, by-the-by, not altogether unsuited to several of the "Board," as my private information now enables me to assert. It is, of course, beneath the dignity of a scientific writer to expatiate upon the past peccadilloes of these individuals; but "the man in Pancras-lane" may do so with equal propriety and justice; nor does he hesitate much to hang such malefactors up that they may wither in the scorn and contempt of their fellow-citizens. With the kindliest of motives, I therefore warn some of these directors, that

> "A chiel's amang them takin notes;
> An' faith he'll prent it."

A foolish anger has carried them beyond the protective power of the law; and the private characters of several of them are now at my mercy. I wish they knew how many worse enemies they have than I am.

Returning to the subject of gas, it gives me great pleasure to corroborate the observations of Dr. Ellet, contained in your March number, concerning the use of the di-chloride of copper for the absorption of carbonic oxide gas. The results which I have obtained are extremely satisfactory; and the whole process deserves to be carefully investigated by those who take any interest in such questions. The common gas of London does not appear to contain any olefiant gas whatever, as the di-chloride of copper produces no more condensation before than after the application of bromine; the average in both instances being about 3½ per cent., which agrees exactly with my former observations, obtained in a much more complex and difficult manner.

Dr. Letheby, it seems, has found the Chartered Gas inferior to the Great Central, upon an average of 300 or 400 trials. Now, I seldom make less than 60 observations per day upon these gases, and my results are opposed to those of Dr. Letheby, except in a very few instances, which will be found scattered throughout my tables. So far back as last December I invited Dr. Letheby to visit my laboratory, or permit me to visit his, for the express

* Thirteen pounds seven shillings and sixpence is the present quotation amongst this class of dealers, but we believe £12 could not now be obtained for shares in the Great Central Company.

purpose of determining and reporting upon the relative value of the whole of the gases supplied to the City of London; and when I relate that no notice has been taken of this offer up to the present moment, the public will judge whose report deserves most credit, more especially as Dr. Letheby has been well paid for his services; whereas mine are a gratuitous contribution. The Central gas has been quite as impure during the past month as upon previous occasions; the City and Chartered gases have been quite satisfactory in respect to purity. I here append my usual photometrical table:—

General or Monthly Average of the Heating Power of the Gases supplied to the City of London by the Gas Companies mentioned, between the 10th of April and the 9th of May inclusive.

	Grains of Water evaporated by 1 cubic foot of Gas burnt at the rate of 10 cubic feet per hour.
CENTRAL COMPANY	2654
CHARTERED COMPANY	2749
CITY COMPANY	2865

To obtain a Light equal to 250 standard spermaceti candles, six to the pound, and each burning 120 grains per hour, it would cost with the—

CENTRAL GAS		4s. 0½d.
CHARTERED GAS	Curtain-road	3s. 11d.
	Westminster	3s. 8¾d.
CITY GAS		3s. 8¾d.
LONDON GAS		3s. 8¼d.
EQUITABLE GAS		3s. 5¼d.

Therefore, if the actual worth of 1000 cubic feet of

The CENTRAL gas be taken at		4s.	0d.
The CHARTERED gas	Curtain-road, will be worth	4s.	1½d.
	Westminster do.	4s.	4d.
The CITY gas	do.	4s.	4d.
The LONDON gas	do.	4s.	4¾d.
The EQUITABLE gas	do.	4s.	8d.
The CHARTERED CANNEL gas	do.	8s.	6½d.
The WESTERN CANNEL gas	do.	8s.	10½d.
The EQUITABLE CANNEL gas	do.	9s.	10d.

Daily Record of Observations upon the Gases mentioned below, the specific gravity being taken by means of an air pump and flask with a delicate balance, the condensation by bromine, and the illuminating power by a spermaceti candle, burning about 120 grains per hour, but always reduced to this gravity by calculation.

Date.	CENTRAL COMPANY.			CITY COMPANY.			CHARTERED COMPANY.			CHART. CO. WESTM.		LONDON COMPANY	EQUITABLE COMP.		WESTERN COMPANY
										Common Gas.	Cannel Gas.		Common Gas.	Cannel Gas.	Cannel.
	Spec. Gravity.	Illuminating Power in Standard Candles.	Condensation.	Spec. Gravity.	Illuminating Power in Standard Candles.	Condensation.	Spec. Gravity.	Illuminating Power in Standard Candles.	Condensation.	Illuminat. Power in Standard Candles.	Illuminat. Power in Standard Candles.	Illuminat. Power in Standard Candles.	Illuminat. Power in Standard Candles.	Illuminat. Power in Standard Candles.	Illuminat. Power in Standard Candles.
Apr. 11	·406	12·4	3·7	·412	13·5	4·	·409	13·1	4·						
12	·397	11·2	3·4	·413	13·8	4·1	·402	12·1	3·8						
13	·399	11·5	3·5	·407	12·7	3·9	·403	12·4	3·8						
14	·407	12·6	3·7	·410	13·2	4·	·405	12·6	3·9						
15	·400	12·2	3·6	·406	12·7	3·9	·400	12·2	3·8						
16	·405	12·4	3·6	·411	13·4	4·1	·402	12·4	3·8						
18	·400	12·	3·5	·410	13·2	4·	·405	12·6	3·8						
19	·399	11·8	3·5	·410	13·3	4·	·407	12·8	3·9						
20	·399	12·	3·6	·413	13·4	4·	·404	12·5	3·7						
21	·397	11·6	3·4	·402	12·3	3·5	·399	12·	3·5						
22	·380	10·5	3·1	·404	12·5	3·5	·399	12·	3·5						
23	·403	12·	3·5	·406	12·7	3·7	·399	12·2	3·6						
25	·397	11·2	3·3	·410	13·2	4·	·401	12·4	3·6						
26	·400	11·9	3·4	·408	12·9	3·9	·403	12·6	3·7				14·	29·	
27	·406	12·5	3·7	·407	12·8	3·8	·400	12·2	3·6						
28	·406	12·4	3·7	·408	13·	3·9	·392	11·9	3·4						
29	·400	11·7	3·4	·400	12·2	3·5	·399	12·2	3·5						
30	·400	11·8	3·4	·402	12·4	3·5	·400	12·2	3·6						
May 2	·411	13·2	4·	·412	13·6	4·1	·390	11·5	3·3						
3	·403	12·4	3·7	·409	12·9	3·9	·405	12·7	3·7						
4	·404	12·2	3·6	·411	13·3	4·	·405	12·7	3·7						
5	·407	12·5	3·7	·410	13·	4·	·403	12·5	3·6						
6	·407	12·8	3·8	·405	12·7	3·8	·404	12·7	3·7			13·			
7	·401	12·2	3·3	·406	12·8	3·7	·400	12·2	3·5	13·	25·6	13·4	14·	30·	
9	·403	12·	3·5	·405	12·7	3·8	.399	12·	3.5						26·6
Average	·401	12·	3·5	·407	13·	3·8	·401	12·4	3·6	13·	25·6	13·2	14·	29·5	26·6

No. 7 A, *Pancras-lane, City, May* 9, 1853. LEWIS THOMPSON, M.R.C.S., &c., Consulting Chemist.

MR. CROLL, MR. DAKIN, AND THE "MAN IN PANCRAS-LANE."

A market gardener, near Edinburgh, one day noticed a thief in the act of creeping through his orchard hedge for the purpose of stealing apples, and, knowing his man, cried out immediately, "Whaar for noo, Sawney?" "Bock agin, sirr," said Sawney, as he beat a speedy retreat.—*Scottish Repartee, or the "coolness" of the North illustrated.*

("Sawney," in the vernacular, signifies Alexander.)

SIR,—Lest the return "bock agin" of Mr. Alexander Angus Croll from his late unsuccessful attempt upon the London Gas Company should be misconstrued into an imitation of the judicious retrograde movement of "Sawney" in the above anecdote, I will endeavour to point out the difference which exists between the two cases. Sawney, as we have seen, went to "steal apples," whereas Mr. Croll went for nothing of the kind; in fact, quite the reverse —"*dare quam accipere*"—he was more anxious to distribute apples (of discord) amongst the shareholders than to steal them. True, he might, perhaps, calculate upon gathering a few "*pommes d'amour*" merely to make "sauce" for the directors when, in Pearsonian-Hudibrastic metaphor, he had "cooked their goose." But, as I have before said, he differed entirely from his namesake, Sawney, upon this point; and also, as I will show, upon another. Sawney came "bock agin" without any apples, whilst Mr. Croll has returned with a most abundant crop of the peculiar apples of the Dead Sea—"fair without, but bitterness and ashes within."

In spite of these differences, there are, nevertheless, shades of resemblance, which it may be as well for me to notice. Thus, Sawney crept towards his object through a hole in a hedge, but, meeting with the legal owner of the premises, went "bock" a disappointed man; and Mr. Croll, "hedging" towards his object through certain worthless shares, met the legally appointed directors of the concern, and returned with a well-grounded conviction that he had, at least, made a mistake. As, however, everything in this world may be turned to account if we only know how, I will follow the example of a great authority, and try to make the best of Mr. Croll's disappointment. Dr. Benjamin Franklin has told us how, in youth, he "paid too dear for a whistle," but afterwards made so beneficial a use of his experience, that the "coppers" can scarcely be said to have suffered a bad investment. Now, I look upon Mr. Croll's defeat at the London Gas Works as a very similar affair to Dr. Franklin's whistle—that is, if it be properly employed. Thus, suppose, during the present obstruction in Cheapside, I see a splendid-looking sheriff's carriage pass along Pancras-lane, I say at once, "Whaar for noo, Sawney?" or suppose I see some bird of the pigeon genus about to purchase Great Central Gas shares, I say to myself, "Whaar for noo, Sawney?" or suppose I see the Great Central dividend, like a vanishing fraction, become smaller and smaller at every half-yearly meeting, with a quiet shrug I say mentally, "Whaar for noo, Sawney?" or again, if I perceive certain schemers foregathering under the penumbra of Mr. Pearson's railway tree, I button up my pockets and say composedly, "Whaar for noo, Sawney?" In short, as a general exclamation befitting every civic movement whatever, there is nothing to compare with "Whaar for noo, Sawney?" I shall always, therefore, consider myself deeply indebted to Mr. Croll for this cosmopolitan expression; and nothing but my ignorance of the language of flattery now prevents me from pouring forth a torrent of the most fervent eulogy in return for such disinterested kindness. This, however, is all the less to be regretted, as I have no wish to make Mr.

Croll blush at the recital of his many virtues; and it is clear to me, from the retiring modesty of his address to the shareholders of the London Gas Works, that he is evidently the youth of whom we have all heard so much in the Eton Latin grammar—I mean the "*ingenui vultûs puer, ingenuique pudoris.*"

Turning to another subject, I have been told by one of those busy-bodies who are always glad to carry an evil story, that my well-known admirer, Mr. Verax Dakin, has thought proper, in lieu of a 10 per cent. dividend, to treat his shareholders with a few romantic observations upon my humble self. Now, I see no objection at all to this; for, so far as my knowledge extends, the Great Central Board is like a very dirty pot, which boils up every half-year, and, of course, at such times throws its scum and filth all around. That Mr. Dakin should get rid of his bile on these occasions is, therefore, as natural as that he should live by selling *pil. cociæ*, or pennyworths of "stick liquorice"; besides, only look at "the dividend" and the state of "the shares"!!

Moreover, if any one living has a right to overlook these little eccentricities of the Great Central chairman, I am, beyond doubt, that very man. Has not the Great Central scheme, by its mere hollowness, served me as a kind of drum to beat up a lucrative reputation? And where, except in the sheep-skin visage of friend Dakin, could I have found parchment enough to withstand the reiterated thumpings of my literary drumstick? Talk not to me of animosity for one who has done so much towards establishing my position, and that, too, evidently against his own desire, and, as it were, in spite of himself! Why, these very petty thunder-and-lightning displays at the Great Central meetings are always followed by heavy showers of lucrative business for "that man in Pancras-lane."

Independent of this, too—which, however, is far from despicable in my eyes—independent, I say, of this, is there no feeling of gratified vanity at finding myself acknowledged as an individual capable of combating the concentrated juggling of the Great Central jobbers, and worthy of occupying the attentive admiration of all their adherents and supporters for many "a long hour by Shrewsbury clock"? To prove how much I appreciate the benefit I thus receive, let any one answer me this question: What should I have been but for the cheap Gas Bubble, and Mr. Dakin's want of truth and temper? or who would ever have heard of No. 7A, Pancras-lane, had I unfortunately been elected as "tester" of the Great Central gas?

Hurrah! then, for Dakin, Pearson, Croll, and Company. *Vive la chicanerie! semper floreat*, "the four-shilling mixed," and long may the record of its real illuminating power adorn the columns of my photometrical table. That table is now an established public index, and hence the 2½ per cent. deduction from the Great Central dividend. It is vain to bring the paid-for experiments of any one in competition with those unbiassed indications; the public can, and does, see for itself, as my simple apparatus is open to all, and is now inspected by hundreds, who daily witness the defective photometrical power of the Central gas, as compared with the City and Chartered gases, and who daily remark its impurity as shown by lime-water and other reagents. This is the "touchstone" which develops the brazen pretensions of the cheap gas, and, if Mr. Dakin be angry, why, who can blame him? "Let them laugh that win"; his is "a horse of a very different colour." Though, after all, I question the policy of indulging in rabid declamation against an opponent like myself, for I may say with *Edgar* in "King Lear," "An' I could ha' been zwaggered out o' my life, 'twould not ha' been zo long as 'tis by a vortnight." The better way would be for some temperate friend to place himself, on these exciting occasions, near the elbow of the wrathful chairman, and at times whisper in his ear, "Whaar for noo, Sawney?" Besides, the public will certainly begin to suspect from these violent demonstrations that I have "hit the right nail on the head," and the more so as they perceive the continual fulfilment of my predictions. Did not I say that we shall get at the truth when the debenture list was closed? And lo! ere the last cloud of that convenient fog-bank is cleared away, down we go to 7½ per cent., and, if honesty had its due, this should have been less than 5 per cent.; but the evil day is only deferred: they have "scotched the snake, not killed it."

I ask the citizens of London, therefore, to use their eyes, and mark the present state of the question, with a view to compare it with the past and future. A man hitherto buried in insignificance, and without employment of any kind, takes a small room in a small house, in a small lane in the dirtiest and most contemptible part of the City of London—unaided by any one, doubted by all; with nothing but a trifling annuity, a steel pen, a British heart, and a strong love of truth and justice to support and assist him. In the pursuit of these latter objects he soon finds himself at "drawn daggers" with the largest, the most powerful, and the most unscrupulous gang of hungry knaves that ever infested the capital of the world, or that London ever saw. The contest begins, and it is "all Lombard-street to a China orange" against the poor friendless and insignificant man. A desperate blow is dealt, but he escapes; another, but his very insignificance protects him; the gang combine, but he avoids them all, and even gives some shrewd cuts in return. The public now begin to take an interest in the matter, and, Englishmen like, cry out for fair play. This disconcerts the knaves vastly, and, therefore, they retire into their own den for the purpose of collecting all their adherents and timid victims, with a view to a murderous thrust at the hateful man; but he has now grown great by their very efforts to destroy him—a British public now cheers him on—he now knows that truth and justice are within his reach, that the knaves are disheartened and dismayed; so, taking up his pen and lighting his spermaceti candle, to search like Diogenes after honesty, the man at 7A quietly resumes his labours, and, in due time, will "unearth" the whole of the gang, and look for no other reward than the approbation of his own conscience, if the public will but look on and see "fair play." Such is the present state of the City gas question, except that the whole power of the daily press has now been brought to bear upon the "man in Pancras-lane." From the very highest to the very lowest, from the *Times* to the *Morning Advertiser*, he is now "shown up," poor fellow. As respects the former of these publications, I need only say that Mr. Delane, the Central Gas director, is father to Mr. Delane, the editor of the *Times*, and for the latter, Mr. Alderman Wire is its legal adviser.

At the celebrated Tallis trial, I was, like many others, subpœnaed, but not called; and this latter circumstance the veracious Dakin puts down to a fear of the consequences of giving my evidence upon oath. Now, Mr. Edwin James, the counsel of Mr. Tallis, had, of course, on his brief the nature of my evidence, and could best judge whether or no it suited his purpose to call me; if, therefore, he permitted me from a friendly motive to withhold my evidence, knowing it to be useful to his client, he certainly did a most disgracefully unprofessional action; and, though I have reason to know that he is a most ardent admirer of my humble efforts, yet I also know that for no friend on earth would Mr. James sully the purity of his reputation. As, however, he is quite able to defend himself from so iniquitous a charge, I leave the matter in his hands; and, albeit his brother is Under-Sheriff to Mr. Croll, I have no doubt the Great Central directors will hear from him on this subject.

"THE MAN IN PANCRAS-LANE."

Legal Intelligence.

COURT OF QUEEN'S BENCH, WESTMINSTER.

TUESDAY, APRIL 19, 1853.

(Before Lord CAMPBELL, C.J., Mr. Justice ERLE, and Mr. Justice CROMPTON).

REGINA *v.* THE SHEFFIELD GAS CONSUMERS' COMPANY AND OTHERS.

Sir F. Kelly, Mr. Bliss, Q.C., Mr. Pashley, Q.C., and Mr. Hardy, appeared for the defendants; and Mr. Overend was in court to take notes for the prosecution.

Sir F. KELLY: My lords, in the case of the Queen against the Sheffield Gas Consumers' Company and others, tried before Mr. Justice Cresswell at the last assizes for the county of York, a verdict of guilty was entered against certain of the defendants, subject to the leave reserved to move this court to enter a verdict of acquittal. I appear, my lords, on behalf of the defendants, and I am instructed to move accordingly for a verdict of acquittal, or for a new trial. The indictment was against the defendants for a nuisance which was alleged to have consisted in an obstruction ofthe public highway. The defendants are a company incorporated, and carrying on business under the Joint-Stock Companies' Act (7 and 8 Vict. c. 110). In the course of their ordinary business, and for the purpose of supplying the people of Sheffield, or, at least, certain of the inhabitants of Sheffield, with gas, they had opened a certain portion of the public streets of Sheffield, some 60 yards or 60 feet at a time (I don't know which at this moment), and they proceeded to lay down their gas-pipes in the places so opened. And to put the point shortly the question is, whether the acts done by the defendants were an indictable offence?

Lord CAMPBELL: The question is, whether the verdict is supported by the evidence? There can be no doubt that opening the public highway is an indictable offence.

Sir F. KELLY: There may be a question about that, my lord. I was just about to state the facts of this case, and I think your lordships will then find that the question is whether, upon the whole facts of the case, the acts of the defendants are an indictable offence? It was admitted upon the trial that the defendants filled up the trenches they opened, and closed and repaired the highway with all reasonable despatch. It may, therefore, be taken that there was no more obstruction of the highway than was necessary for laying down the defendants' pipes. It was likewise proved that they had acted under the authority of the board of highways, and that they had also the authority of the vestries of the various parishes through which the gas pipes were intended to pass. They had the consent also of the police authorities for what they did. Evidence was offered and rejected by the learned judge on the ground that it would not make any difference whether it were so or not, that the defendants had the consent of the owners of the soil. It will be seen, therefore, that the question is whether it is an indictable offence to open the Queen's highway, and so obstruct it for a time in order to supply the inhabitants with gas? Your lordships will observe that this is not a question between the owners of the soil and the gas company. There is no doubt, I think, that unless the company is carried on under the direct authority of Parliament, it is unlawful for them to open the soil against the consent of the owner. My Lord Campbell will, no doubt, recollect a case in the House of Lords in which this point was so held in reference to the acts of a company at Glasgow.

Lord CAMPBELL: In that case it was contended that the soil of the

highway was in the Crown. But, on examination, that turned out not to be the law of Scotland any more than of England.

Sir F. Kelly: No, my lord. This, however, is a totally different case; and it might well be (I do not say it is so, but it might be) that all the owners of the soil were shareholders in the company.

Lord Campbell: What is the proposition, Sir Fitzroy, on which you rest your argument? Let us know what you are endeavouring to support?

Sir F. Kelly: The proposition, my lord, is, that the right of the public to the use of the public highway is subject to this qualification, that that right may be interrupted and suspended in order to the reasonable enjoyment and convenience of the adjoining property.

Lord Campbell: There is no doubt at all about that. A carriage may stop at a door, or a cart may come and deliver beer, or for any other proper purpose. You say that they did no more than was necessary for carrying out the purposes of the act of Parliament?

Sir F. Kelly: Yes, my lord. And they did it with all reasonable expedition, and made good the damage.

Justice Crompton: Does the act authorise them to break up the highway?

Sir F. Kelly: No, my lord; it does not expressly authorise them to do that; but I thought my Lord Campbell asked me whether what they did was carrying out the purposes for which the company is established under the act of Parliament. There was no question that they did no more than was necessary for carrying on their works; and the question, therefore, is, whether the power to do this is not implied by the Joint-Stock Companies' Act. The case is within the admitted rule and principle of law, that the highways may be interrupted and partially suspended for a time in order to the reasonable enjoyment of the adjoining property, and there are many obstructions occurring every day. The putting up boarding and scaffolding for the purpose of repairing houses is an obstruction, and it is an obstruction which continues for days, and often weeks.

Lord Campbell: I think the putting up these boards is permitted under act of Parliament.

Sir F. Kelly: It is so in some places, my lord, but not in all; and it is perfectly lawful to do so for the reasonable enjoyment of property or the reasonable protection of life. They would be indictable unless they were for a lawful purpose; but, being for the purposes I have mentioned, they are not illegal. But, if the obstruction is continued an unreasonable time, that is indictable. Now, my lords, let me mention the next kind of act to which I will compare this case (and between which and the present case I most sincerely declare I cannot see the distinction). We all know that the inhabitants of London are most of them supplied with coal through holes in the pavement of the streets. These holes are usually closed, but, for the purpose of supplying fuel to the houses, they are occasonally opened, and some ten or twenty tons of coals are put down. An obstruction of the highway is necessarily caused by so doing, and the question I venture to ask is this: Has not the occupier of a house the same reasonable power to bring light into his house that he has to bring fuel into his house?

Lord Campbell: The acts of Parliament by which power is given to open streets generally give it expressly. This was so in the case of the Electric Telegraph Company, which I tried. It may be that there is such a right as you contend for at common law, and yet, *ex abundanti cautela*, the power is expressly given.

Sir F. Kelly: It is not altogether *ex abundanti cautela*, my lord; for it is quite necessary for all companies to have these powers in order to carry on their business effectually. Therefore express powers are given to enable them to open streets, &c., without the consent of the owners of the soil; for, otherwise, any churlish owner of the soil might withhold his consent after the company had expended large sums of money, and very materially injure them. But it does not at all follow that where the owners of the soil do not object, the company need the authority of an act of Parliament to save them from the liability of being indicted. Then, my lords, if we look to acts of Parliament, I should say that the act under which the defendants are incorporated raises a very strong inference that it was intended to give them this power. The Joint-Stock Companies' Act applies to all companies established for any commercial purpose, or for any purpose of profit, or for the purpose of assurance or insurance; and the only exception is, that the act "shall not extend to any company for executing any bridge, road, cut, canal, reservoir, aqueduct, waterwork, navigation, tunnel, archway, railway, pier, port, harbour, ferry, or dock, which cannot be carried into execution without obtaining the authority of Parliament." These are all the companies which the Legislature thought it would be improper to allow to carry on their proceedings without an act of Parliament, and gas companies are not at all referred to. This case has been before the Court of Chancery, and, though I cannot say I have the authority of the Lord Chancellor in my favour, the expression of his opinion is so to some extent. It has been before the present Lord Chancellor twice, and on the last occasion it came before him sitting with the Lords Justices on an appeal. The Lord Chancellor and Lord Justice Turner concurred in refusing an injunction to restrain the defendants from carrying on their works. Lord Cranworth, in a very elaborate judgment, said that he was by no means satisfied that it was an indictable offence, and gave several illustrations of the interruptions which the public right of way is liable to for the purpose of enjoying the adjoining property. Now, my lords, I am not aware that I need trouble your lordships further; it appears to be a new case, and new cases must be constantly arising in the course of things and from the progress of science; and it is by the means which this furnishes to us that our houses become more pleasant to all. Granting that it is an indictable offence improperly to obstruct the highway, the question is, whether it is indictable to obstruct that highway for a time, and for a time only, in order to provide for the inhabitants of the adjoining houses the means whereby they may reasonably and fairly enjoy their dwellings.

Lord Campbell: You may take a rule to show cause.

Sir F. Kelly: I must mention to your lordships that I ought to take it in the alternative—to enter a verdict of acquittal or for a new trial—since it was argued at the trial that the consent of the adjoining owners was given, and it might have been shown that it was so, but the evidence was rejected, and the learned judge said it would make no difference.

Lord Campbell: If there be anything like misdirection. I think we had better hear the point now, but I cannot see how a licence given by the owners can affect the question or be material.

After a short consultation by the Court, a rule was granted to show cause why a verdict of acquittal should not be entered, or a new trial had.

BERWICK QUARTER SESSIONS.

Friday, April 8, 1853.

DEFRAUDING THE BERWICK GAS COMPANY.

David White, described as a labourer, was indicted with feloniously stealing and converting to his own use, on the 9th of February last, 5000 cubic feet of gas, the property of the Berwick Gas Light Company. A second count varied the property as that of Robert Oswald. The prisoner pleaded not guilty.

Mr. Greenwood appeared for the prosecution; the prisoner was defended by Mr. Grey.

Mr. Greenwood stated the case. He said: This is a prosecution instituted by the Berwick Gas Light Company for a fraud, and what I shall take leave at the very outset to call a very bad and exceedingly heinous fraud. The charge against the defendant is that he has stolen from that company a great number of cubic feet of gas throughout a period of several years. It often happens that persons in a better condition of life, and who are not tempted by poverty to commit these offences, yet do it merely for the purpose of putting a little money into their pockets, or for avoiding the payment of it altogether. I shall show you that this offence was of the latter class—that it was to avoid payment for the gas the prisoner consumed on his premises. The offence is one of a rather peculiar kind—it is a new prosecution, though I believe that two or three such cases have occurred, with what result I am not fully acquainted. Difficulties must necessarily arise in such a case, because the property stolen is of such a description as to make it not easy to bring it before us in a tangible shape. The prisoner has two houses in Woolmarket; in the front, he has a beer-shop, and in the back, communicating by a passage, is his dwelling-house. The gas is supplied to him by the company, and the quantity consumed is indicated by the meter, which is also in general lent to consumers by the company, though in some cases individuals have their own meters. Now, these meters are hired out by the company to their customers, with the understanding thnt all the gas consumed in the premises shall pass through them, so as to enable the company to ascertain how much each person consumes. Mr. Paterson, the manager of the company, is in the practice of making a periodical inspection of all the meters in the town belonging to the customers of this company, and noting down from the index the quantity consumed. The meter is then locked up and sealed by him, and the consumer has thus no access to it. The prisoner had in his dwelling-house three burners, one of them in the kitchen being a six-jet burner, and of course consuming a large quantity of gas—as much as four cubic feet within the hour. The other two burners are smaller ones, in the staircase and in a sitting room up stairs. If these three burners were at full work for six hours a day, being the average time that the gas is consumed throughout the year, it is calculated that they would consume a quantity equal in amount to £5. 0s. 8½d.; but we shall see presently, what Mr. White's actual payments were. He was supplied with gas from May, 1847, down to the beginning of February last, for his back premises. About eighteen months ago, he took the front premises as a beer-shop, and was also supplied with gas for it. Now, his payments to the gas company since 1847 have been these:—From May 31, 1847, to May 31, 1848, 12s. 10d.; May 1848 to May 1849, 9s. 7d.; May 1849 to May 1850, 6s.; May 1850 to May 1851, 9s. 11½d.; May 1851 to May 1852, 7s. 11½d.; and from May 1852 to the 9th of February last, the quantity indicated by the index was equal in amount to 2s. 5½d. Now, these very small payments had long attracted Mr. Paterson's attention, and aroused his suspicion; for he could not but suppose that a much larger quantity of gas was consumed than was indicated by the meter, and he determined to find out how it arose. Well, about the 31st of January last, he went his round as usual, and finding the meter in the prisoner's house indicating so little, he examined it to see if there was nothing wrong with it. He found it quite correct, and in good working order. He observed that the stop-cock of the exit pipe, that is, the pipe which supplied the house with gas from the Company's meter, was turned off so that no gas could possibly pass through the meter, and consequently none to the house. He then went into the kitchen, and applied a light to the burner there, and it burned immediately—there was a full strong light, although, you observe, the stop-cock at the meter was shut. He left it burning, and went up stairs to the other burners, which also burned freely. After that, he put them all out, and went away, satisfied, of course, that gas was conveyed to the house by some fraudulent means. He returned to the house on the 9th of February, in company with Mr. Wilson, plumber, and one of his journeymen, when he found the stop-cock still shut, and repeated the experiment of lighting the burners with the same results. Between these two visits, a period of nine days had elapsed, and the index of the meter on the latter occasion showed that no gas had during that time passed through the meter; consequently the supply which during that time had been used must have been obtained by other and of course fraudulent means. While Mr. Paterson and the plumbers were examining the

meter, the prisoner came in, and asked if there was an escape of gas, and immediately went into a dark closet, followed closely by Mr. Paterson, who said: "Do you think the escape is in this closet?" The prisoner said: "No, there's no pipe here; there is nothing here but coals." Mr. Paterson, however, went in with a lighted candle and searched the place, when behind the coals, and in an angle of staircase, he observed a pipe connecting the service-pipe of the company with the pipe that supplied the house, thus cheating the company of every atom of gas used in the house that did not pass through the meter. On this connecting-pipe—this fraudulent pipe, as I may term it—there was a stop-cock, by shutting which the prisoner was able to send the gas through the meter at his pleasure. Having shut this stop-cock, Mr. Paterson opened the other, and again lighting all the burners, it was found that the gas passed through the meter. After that there could be no doubt whatever that this was the cause of the escape of gas from the meter, and of Mr. White's escape from paying for what he consumed. It was not likely, that in the darkest part of the year, and with an apparatus, too, in the house for giving him light, the prisoner did not use gas; and the presumption therefore is, that the defendant must have got gas by a mechanical contrivance which his ingenuity suggested to him, and which his dishonesty induced him to use. Mr. Greenwood concluded by stating that if he should prove these facts, he had no doubt the jury would agree with him in looking upon this as a gross cheat and a fraud, and would return a verdict accordingly.

James Paterson, manager of the gas company, was then examined.—The prisoner has been supplied with gas from May, 31, 1847, up to February last. His premises consist partly as a beershop and his back premises as a dwelling-house. There is a yard between them. It was in the dwelling-house that this fraud was committed. Both houses were supplied, and each house had its own meter. I examine the meters of our customers at January 31, May 31, and Sept. 30. The last time I examined the prisoner's meter was on the 9th of February; previous to that, on the 31st of January. From May, 1847, to May, 1848, the amount consumed was 12s. 10d. He had one light in the kitchen: it was a burner containing six jets. The one in the staircase was supplied with a No. 2 jet; in the room up stairs the jet was a No. 2, a fishtail burner. It affords two oblique jets of flame. The amount of cubic feet per hour burned in the kitchen is four, or 7000 feet per year, amounting to £2. 17s. 2d., burned from sunset till eleven o'clock, the average time during which the gas is usually consumed. The other two burners equal 3218 cubic feet per year, at the rate of one and eight-tenths per hour, equal in money to £1. 5s. 8½d. The stair-head burner consumes at the rate of 1½ cubic feet per hour, or 2330 feet per year, equal to 17s. 10d., or amounting altogether to £5. 0s. 8½d. The actual payments made by the prisoner were in the year ending May 31, 1848, 12s. 10d.; in 1849, 9s. 7d.; in 1850, 6s.; in 1851, 9s. 11½d.; in 1852, 7s. 11½d.; and from May 31, 1852, to Jan. 31, 1853, 2s. 5½d. I examined the meter on Jan. 31, and found it indicated 200 cubic feet for four months during winter. I also examined the supply pipe, and found the stopcock turned off, shutting off the gas from entering the meter. I next went to the kitchen, and opened the burner there; and in doing so, there was a very strong rush of gas. I went again on Feb. 9, along with Thomas Wilson, Bridge-street, and one of his men. We went first to the meter, and the stopcock was still shut, We then went to the kitchen and lit the burner there: there was a full supply. The staircase and the room burners also burned freely. The supply of gas that fed those burners did not pass through the meter. We then went down stairs, and Mr. White came in and asked what was wrong—if there was an escape of gas. I said I thought there was, and I wanted to make an investigation. Mr. White went into a dark closet, and I followed, and asked him if it was from there that the escape proceeded. He said no, there was no pipe there; nothing but coals. I examined for myself, however, and found a pipe leading to the meter. The service pipe from the company's main enters this closet in its way to the meter. The pipe I saw connected this pipe with the exit-pipe that supplies the house. The effect of this connecting-pipe was to supply the house with gas without its passing through the meter. There was a stop-cock on this connecting pipe, which was open. Having turned it off, so as to prevent the gas going through the pipe, none of the lights would burn. I then opened it, and the lights burned freely. All this iime the stop-cock in the company's service pipe was shut. The connecting-pipe was pretty much concealed by boarding, which I think belonged to the stair, but it could not be discovered without a very narrow examination. I removed the meter on the 9th of February, and cut off the supply-pipe. I proved the meter most carefully, and found that it indicated about 2 per cent. short of the full and proper quantity of gas which should pass through it, but this is sufficiently near for all practical purposes. Of course the consumer gets the benefit of that deficiency.

Cross-examined by Mr. GREY.—It makes some difference whether the meter stands level or not. The prisoner's meter stood sufficiently level in the closet. I did not apply a level to it. In cases where the meter becomes deranged, I go to the parties and ask them if they have been burning the same quantity or not. Sometimes, but very rarely, gas will pass through the meter without indicating. The accuracy of the meter depends a good deal upon the height of the water in it. As the water falls, the meter indicates short. It may vary from one to two per cent. Suppose all the water was gone, the gas would not pass through the meter. Suppose there is a slight derangement in the position of the meter, and there is no water, it is impossible that a small quantity of gas may pass through without indicating. The meter in the front house was the prisoner's own. I am not satisfied with its working, but I have never tested it. I was never requested by the prisoner to take away the meter in the dwelling-house; but he once suggested, after he took the front house, that it would be well to have the consumption all through one meter. I said in that case I would take away the meter; he replied that I had better let it alone until he saw me again. I have never heard any more from him about it.

Thomas Wilson, plumber, went with Mr. Paterson, on the 9th of February, to the prisoner's house, and examined the meter. Saw a pipe connecting the service and exit-pipes in a dark closet. Did not see prisoner meddle with the pipe. The gas could escape through the pipe without going through the meter.

John Wilson, journeyman plumber, corroborated the previous testimony.

Mary White, daughter of the prisoner, was then examined as to the burning of the gas in prisoner's house. Her statement was, that very little gas had been burnt in prisoner's house during the nine days between the 31st January and 9th February. The burner in the kitchen had not been put there more than two or three days before Mr. Paterson was there. The kitchen in the back house was always occupied.

Mr. GREY, on behalf of the prisoner, contended that no agreement verbal or otherwise, had been made between the gas company and, the prisoner, that the manner described to-day was to be the mode of his burning the gas. His cross-examination of the witnesses and the nature of his address was with the view to prove that if a greater quantity of gas had been consumed than was indicated by the meter the defendant was indebted for it to the company. It had been stated by the manager of the gas works, that instances did occur in which the meter became faulty in its indications, either by defects in its works or the position in which it was placed. In these cases an application was made to the consumer to know whether he had been burning as formerly, and if he had, then the charge was made similar in amount. It had not, he contended, been proved that the prisoner had placed the connecting or fraudulent pipe where it was fonnd. The evidence, in fact, was rather against such an assumption—for a workman, one of the witnesses, had said that after the gas had been introduced into the house it would have been not only an awkward but a dangerous proceeding to have made in such a place such an addition to the pipes, from the fact that the work could not have been done without a light—a candle, or some other flame. And if any of these had been introduced to the confined apartment when the pipes were opened and the gas admitted—for there was no provision to stop it—then an explosion was highly probable; in fact, no workman in his senses would have undertaken it. He admitted, that if defendant had availed himself of the work and design of a preceding tenant, and had thus consumed the gas fraudulently, then he was equally guilty as if he had contrived and executed the whole device; but no evidence had been produced to show that he was aware that such an arrangement existed. He called upon the jury to bear in mind these points in the evidence; on the law of the case the recorder would instruct them.

The RECORDER followed.—He described what would constitute a larceny in this case, and stated that it was for the jury to decide whether the occurrence had amounted to a larceny or a mere breach of confidence. The former was the taking away the property of another without the owner's consent by an act of trespass; the latter was the receiving the charge or custody of another man's goods and wasting or appropriating them without making a due account to the owner. Suppose, he said, that I were to entrust one of you with 10s. to pay to another a debt I owed him, and you were not so to apply the money, but were to appropriate it to yourself, then that would be a breach of confidence, but not a larceny. But if I were to place 10s. on a table for the purpose of paying another person, and one of you were to step in between me and my carrying my purpose into execution, and were to carry off the 10s., then that would be a larceny. The present case rested very much upon the circumstance of whose property the gas was before it passed the meter. If it were the company's, then the prisouer would have committed a larceny by using that which he did not pay for, and without the company's consent. If it were the prisoner's, then he acted fraudulently only, and perpetrated a breach of confidence in not reporting that quantity which he had consumed. To place the case more strongly, suppose I were to lend you bottles into which you put your wine, and I were afterwards to carry off the said bottles, with their contents, then I should be guilty of a larceny. But suppose that I were to hold out a decanter, and you poured wine into it, and I consumed the wine, that would not constitute a larceny. In the present case it will be necessary for you to consider whose property the pipes conveying the gas were.—He then put the case to the jury in the following questions, which elicited the answers annexed:—

Are you satisfied that the prisoner conveyed the gas past the meter for the purpose of using it without paying the company?—The Jury: We think he did.

Were the pipes between the meter, and the mains in the street, the prisoner's property?—Yes.

Had the prisoner, by his contract with the company, any right to use the gas before it entered the meter?—We think not.

That then is a verdict of guilty.

The RECORDER said: By a recent act I am enabled, in any case where doubt or difficulty exists, to state a case for the opinion of the judges, and, until the legal point be settled, to defer passing sentence. I may, therefore, take sureties from the prisoner, requiring him to appear before me any time I think proper; aud, in the meantime, the case can be discussed by the judges. I therefore give him his liberty on condition of his binding himself in the sum of £100, and finding two others in £50 each. On his producing this surety I will give him his liberty till the first day of next sessions, when he shall appear again before me.

The surety was produced, and the prisoner set at liberty.

Miscellaneous News.

GREAT CENTRAL GAS COMPANY.

The fourth half-yearly meeting of the shareholders of the Great Central Gas Company was held on Friday evening, April 29, at the London Tavern. The attendance of proprietors was very numerous. Mr. Dakin occupied the chair.

The common seal of the company having been affixed to the register of proprietors,

Mr. Alderman WIRE, the solicitor, read the half-yearly report of the directors, which was as follows:—

"In our last half-yearly report we expressed our expectation that, by the end of the current year, we should be in a situation to close our capital account. We are happy to say that this expectation has been realised. On the 31st of December we closed the account, having discharged all demands for the establishment of the company and the construction of its works. The following are the results:—We have issued 15,000 shares (£150,000), and we have raised on debentures £66,000, together £216,000. Of this sum we have expended £212,764. 17s. 11d., out of which we defrayed the expenses of two years of active agitation to put down monopoly and reduce the price of gas. We sustained the charges of a vexatious suit in Chancery to prevent our laying down our pipes, and we bore the costs of three severe parliamentary conflicts. In the first we were opposed by the combined gas companies of the kingdom; in the second, by the Chartered and City Companies; and, in the third, by the latter alone. Notwithstanding the enormous amount of preliminary charges which these unusual contests occasioned, out of the remaining portion of the sum expended we have done what no other gas company ever did. In the short space of two years we have furnished gratuitously to 5800 consumers, meters and services; we have laid down mains and pipes, and we have erected works, machinery, and plant, equal to the production of 420 millions, the storing of 500 millions, and the distribution of 800 millions of gas, when the leading main is completed to the City.

"The sum of £3235. 2s. 1d., balance of capital in hand, we reserve as a fund to provide meters and services to new consumers; this sum is sufficient to supply upwards of one thousand persons according to our average rate of charge. By the same average, the rental of this number of new consumers will give the compan y an additional rental of £7000 to £8000, and an annual profit of £3000 to £4000; and we are in hopes that in the course of the ensuing year the exertions of the shareholders and friends of the company to obtain new consumers will call for the outlay of this sum.

"The repair and replacement of meters and services will be provided for, like the other works of the company, out of revenue. [Mr. Alderman WIRE requested them to mark the distinction—out of revenue, and not out of capital.] Mr. Croll, by his contract, has to keep the buildings, plant, and machinery, at Bow-common, in repair; and the meter maker is bound by his contract to repair the meters for five years; there will, therefore, be nothing required for several years to be taken from the revenue account under these heads of expenditure. The directors, after mature consideration, have, however, deemed it right to set apart £1200 a year from the revenue account, to commence with the present year, and to be accumulated at interest, as a fund to meet all charges under these heads when they shall legitimately arise. When, as we hope will soon be the case, the number of new consumers shall increase beyond the power of the balance of capital in hand to meet the charge for meters and services, we shall be enabled to borrow from the accumulating fund sufficient to meet the exigency; and at a future period, with the approbation of the shareholders, a sufficient portion of the 5000 reserved shares now standing in the names of trustees may, if necessary, be disposed of at the price of the day, to replace so much of the accumulating fund as shall have been thus advanced for meters and services to the capital account.

"The 5000 reserved shares constituting the remaining capital of the company will be left in hand ready to be issued by a vote of the shareholders, when the day of reduction in the price of gas shall arrive, which will, in all probability, call for the extension of the works, so as to raise their producing and storing powers up to our powers of distribution. For this purpose, we possess a sufficient extent of freehold land; and the experience of the past warrants the confident belief, notwithstanding the large sums to which we have adverted as necessarily expended in preliminary charges, that the £266,000 estimated by Mr. Croll as the cost of works for manufacturing, storing, and distributing 720 millions, will not be exceeded, whenever we are called upon to raise the works to this standard.

"Your directors feel that they cannot dismiss this important part of their subject without paying a well-merited compliment to their talented engineer, Mr. Croll; and those of the shareholders who have visited the works since their completion, and observed their extent and magnitude, and the simplicity and order of their arrangement, will fully comprehend the claims he has upon them, for the successful exertions of his talent as an engineer, as well as upon the public at large, for the important part he has taken in reducing the price, and improving the quality, of gas throughout the metropolis.

"The consumption of gas from the company's works during the year 1852 amounted to two hundred and twenty millions, whereas our powers of production had been during that period raised to meet a probable demand of four hundred and twenty millions: this, of course, called for a large outlay of capital, upon which a dividend has to be paid beyond what would have been necessary, had we been gifted with a sufficient degree of foresight to enable us precisely to proportion our means and appliances to the state of now existing facts. This circumstance has, of course, operated favourably upon our dividend for the present half-year; but we feel confident that it is to temporary causes alone we must attribute the fact, that the demand during the year 1852 did not increase as we had anticipated, and that, those temporary causes having ceased to exist, we may reasonably hope that, with the active co-operation of our friends, the consumption during the present year will be increased to an extent which will, in future half-years, raise the dividend to the *maximum* amount in our acts of Parliament, and give promise of an early reduction in price, which, when it takes place, will call all our powers into requisition.

"The high position this company has now taken as one of the principal agents in supplying this great commercial City with the important article of gas, rendered it essential that we should place ourselves beyond all chances of failure in the supply of whatever quantity the public might demand. We now occupy the proud position, that if the exertions, which we hope will be made for extending our operations, shall be crowned with the largest amount of success, we shall never experience any difficulty in meeting these demands during the longest nights and the darkest days, even if we have a succession of 'London fogs' which our competitors and other gas companies, straightened for room, sometimes found it so difficult to encounter.

"Although some portion of the outlay, to which we have just adverted, for additional works, might have been postponed for a season, it would have been impossible to say when it might *not* have been required; and it is satisfactory to know that the works were undertaken and the contracts made before the extraordinary rise, which has subsequently taken place in the price of labour and materials, and which would have entailed upon us, in all probability, a much greater expenditure, had the additions remained to have been executed at a future day."

"Four directors, Messrs. Bovill, Clemow, Massey, and Virtue, retired by rotation, and, being eligible for re-election, offer themselves accordingly.

"The revenue account, which, as well as the capital account, has been examined and certified by the auditors appointed by the Corporation, shows an available balance of £7016. 2s. 6d. for half a year's dividend up to the 31st of December last. We propose to declare a dividend at the rate of 7½ per cent. (less the income-tax). It will be payable on Friday, the 6th of May, and will absorb £5625, carrying over a net balance of £1391. 2s. 6d. to the credit of the current year's account.

"We feel, we confess, somewhat disappointed that the results of our last half-year's operations do not present so favourable an account as we had hoped and believed would have been the case. When, however, the extraordinary opposition to which we were subjected during the last year is taken into consideration, we do not think this circumstance ought to do more than excite both the directors, the shareholders, and the customers of the company, as well as our fellow-citizens who love fair play, to make increased exertions in our behalf.

"It will be recollected that, at the commencement of the year 1852, an unfortunate dispute took place between this company and Mr. Tallis, in respect of our gas bill. Differences that might have been arranged if the parties properly interested had been left to themselves were seized upon by opponents of this company, and were employed throughout the whole of the last year to our serious disadvantage. In our two last half-yearly reports we referred to this unpleasant topic, but abstained from entering upon the details, as the matter was then *sub judice*, in a court of law, the only tribunal in which such a matter could be fully and fairly discussed. In December last the action was tried, before the Chief Baron and a special jury of London merchants. In former days the stringent laws of evidence often excluded the testimony of parties who could really throw light upon the matters at issue, and left the case to be disposed of as a mere exhibition of skilful tactics between the counsel in the cause, while the judge and jury were left in the dark as to its true merits. The recent alterations in the law of evidence have, happily for this company, removed those artificial impediments to the discovery of truth. The company were informed, both by their own counsel and by the presiding judge, that they might, if they pleased, limit the field of inquiry to the claim for goods sold and delivered, which was the only issue raised on the record; and the company, however, courted the fullest investigation, and placed Dr. Letheby (the chemist appointed by the Corporation), Mr. Croll, and the superintendents and officers of the company, in the witness-box, open for examination and cross-examination upon any matter affecting the company, or the quality or supply of gas. Mr. Tallis, the defendant, and his clerks and servants, were likewise examined at great length, and after a patient investigation of the whole matter, which occupied two days, the jury, without permitting the Chief Baron to finish his summing up, gave a verdict for the full amount of the company's bill.

"A court of justice should likewise be the temple of peace; we desire that it shall be so upon the present occasion. Mr. Tallis, at the conclusion of his evidence in court, had the manliness to say that he appreciated the public-spirited exertions of this company in reducing the price of gas, and would have continued to deal with them if they would have supplied him by contract at the same annual charge as the Chartered Company now supply him. Although we could not, consistently with our rule of conducting business, enter into a contract which assumes two rates of charges for the same article to different customers, yet we certainly regret that, through any misunderstanding, we were deprived of a customer who, from his avowed prepossession in favour of this company, would, in all probability, have remained our customer if it had not answered the purposes of a rival company to seduce him away from us, by the temptation of a system upon which we feel we cannot with propriety act.

[Here follows a libellous attack upon Mr. Lewis Thompson, which, for obvious reasons is omitted.]

"An apology is due to Dr. Letheby, the eminent chemist, for placing his name upon the same paper even, to disprove Mr. Lewis Thompson's statements. As, however, he deprived us of the opportunity of disproving them by other means, we feel ourselves justified in annexing the accompanying letter from Dr. Letheby, in reply to an application from the chairman of the company for some explanation of a portion of his report to the Commissioners of Sewers, as to the relative qualities of the gas supplied by the different City companies.

"The Surveyor of the Commissioners of Sewers, in his report, recommends that the other City companies shall have their gas for the public lights subjected to the examination of Dr. Letheby, or some other eminent and impartial chemical referee. We trust the day will arrive when our oft-repeated proposal will be adopted, and that at the joint expense of the several companies a suitable room may be provided by the proper officer, at which all the gas, as well for private consumers as for public lights, may be tested both by night and by day in comparison with each other, not only by the officer appointed for that purpose, but by any other competent person upon the application of any consumer of gas.

(Copy.)

London Hospital, April 28, 1853.

"'DEAR SIR,—In answer to your note of to-day, concerning the statement made by me in my last report to the Commissioners of Sewers, namely, that I had tested the gas supplied by other companies, and asking for the results of my experiments on the illuminating power of the gas supplied to the City of London by the Chartered Company, I beg to say that, during the last twelve months, I have made between three hundred and four hundred experiments on the illuminating power of the Chartered gas. These experiments have been conducted in exactly the same manner as those referred to in my quarterly reports on the illuminating power of the Great Central gas; and the following are the comparative results:—

"'The light of the Chartered gas, when burnt according to the act of

Parliament directions, has been equal to 12·5 sperm candles, of 120 grains per hour, or to 14·5 wax, of the same consumption; while that from the Great Central, when burnt in exactly the same way, has been equal to 13·8 sperm, or to 15·8 wax; so that, to take the average of an entire year, the light of the Great Central gas has been about 10 per cent. greater than that of the Chartered.

"'If you refer to the evidence which I gave at Guildhall in December last, at the trial of the Great Central against Tallis, you will perceive that I said, in answer to Mr. Hill, that the gas of the Great Central was generally from one candle to one and a half better than that of other London companies. The preceding are the results on which my statement was based. "'I remain, yours truly,

"'To Thos. Dakin, Esq.'" "'Hy. Letheby.

[Our reporter, who was the only representative of the Press at the meeting, was refused a copy of the report. The imperfect account which appeared in some of the morning papers, consequently, must have been derived from some officer of the company.]

The Chairman, in moving the adoption of the report, said that he could assure the shareholders that he and his brother directors had never met them under more cheering and encouraging circumstances than they did on the present occasion; for, taking into consideration all the circumstances which had been detailed in the report, the condition of the company had never been so healthy and promising for its future prosperity. The great point in all companies of this nature was, that the capital account should be closed, and that the shareholders should know precisely the position in which they stood, and what had exactly been expended in works and plant for the carrying on of their concern. The directors had been exceedingly anxious to accomplish this object at as early a period as possible, and they were now in the gratifying position of being enabled to announce to the shareholders that the promise which had been made by the board at the last half-yearly meeting had been fulfilled, and their expectations amply realised. The accounts had undergone the most diligent and critical examination of the official auditors, who (he must do them the justice to say) had performed the arduous and responsible duties of their office in a manner that challenged the confidence and the thanks of both the directors and the shareholders. The capital of the company now amounted to £212,364. 17s. 4d., which bore the same relation to the entire amount of capital which their act authorised them to raise, as did the present supplying power of the works to the whole 720,000 feet, which they hereafter expected to require—(hear, hear)—so that, as far as their experience had gone, the estimate on which the directors had originally asked for the confidence of the proprietors had been, up to this time, entirely borne out. They were here in this position: they had a power equal to the production of 670,000 cubic feet, or fifty per cent. more than the present rental; so that, without any addition to their capital account, and with a very slight increase of the working expenses, every additional £1000 rental which might be obtained by the exertions of the directors or shareholders, in increasing the number of consumers, would yield at once £500, or fifty per cent., to the direct revenue of the company. Now, it was very true that the revenue account had not up to this time been as large as the directors had had reason to expect. The added revenue of the past year had, however, been considerable. They had not been going backward, but forward, as they had had an addition of something like £12,000 to their rental. Though, however, they had not been able to give the ten per cent. dividend which they had anticipated, yet they had given them a dividend of 7½ per cent., which would leave a very handsome surplus towards the next half-year; and he would remind them also that, if they took the entire amount of dividend which had been declared on their capital during the two years of the working of the company, they would find that they had received something equivalent to 10½ per cent. It remained for the directors and shareholders to apply themselves to this, the only faulty part of their present condition—they had abundant means of supplying any quantity of gas which the City of London might require; and all they wanted was more customers. He had not the slightest doubt but that, from the progressive increase of the past quarter, they should, even without any extraordinary exertions, be in a position, at the next half-yearly meeting, not only to pay a dividend of 10 per cent., but to pick up the 2½ per cent. which, for the present half-year, they had omitted to pay. The report had referred at some length to one very important cause of disturbance which had occurred to interrupt the progressive prosperity of the company—namely, the instrument which was afforded to their rivals by the case of Messrs. Tallis, which was so very heartily—naturally enough, perhaps—taken up by the competing companies, who used with great assiduity, and very much to the damage of this company, the weapon with which that dispute furnished them. The trial of the cause was also, through the part which they had taken in it, considerably delayed; for it should have taken place, in the due course of justice, at the summer sittings of the Court of Exchequer. The directors of this company were very anxious that the dispute should be brought to a speedy issue, and every preparation had been made for hearing the cause in June; but then, however, it was postponed on the application of the defendants, on the ground that they wished to obtain the evidence of some scientific persons. No such scientific evidence was, however, adduced by the defendants when the cause finally came on in December; and, as they had heard, the company made good their claim on the Messrs. Tallis, and in open court, before a British jury, relieved their character from the imputations which had been so freely lavished upon them. He (the chairman) was present in court during the trial, and watched the case very narrowly; and it appeared clear to him that the jury were, very shortly after the opening of the case, satisfied that there was no foundation whatever for the defence set up by the Messrs. Tallis. There was no doubt whatever that that long dispute had considerably depressed the interests of this company, and had prevented heavy additions to its customers, which would otherwise have taken place. Now, however, that the cause had been removed, the effect would cease. They were continually receiving additions to their customers, and had now arrived at that position that they only required the cordial co-operation of the shareholders to put them beyond all doubt as to the amount of their dividends hereafter, and enable them soon to reduce considerably the price of their gas. He was gratified to say that the system on which this company had been established had been attended with such complete success, both as regards the protection of the interests of the consumer and of the company. They were aware that, if any question now arose as to the registration of a meter, there was an independent officer who was ready to receive the complaint, and, with the aid of a carefully prepared apparatus, to examine the meter, and ascertain whether it was faulty; and, on the other hand, there was an eminent and impartial chemist (Dr. Letheby), who reported periodically to the Commissioners of Sewers as to the illuminating power of the gas supplied by the company. Dr. Letheby, in his last report to the Commissioners of Sewers, dated Feb. 11, stated that "the gas supplied by the Great Central Gas Consumers' Company has had an annual average of 15·8 candles, or, in other words, nearly 32 per cent. greater than that required by the act of Parliament." He thought that, under such circumstances, they had a very fair claim on their fellow-citizens for support. The Chairman concluded by moving the adoption of the report.

Mr. Thwaites, in seconding the motion, said that the report which they had heard read was so very important, and referred to so many points bearing on the welfare of the company, that he would suggest that it should be condensed, so as to embody all the facts, and omitting what was unnecessary, and that it should be then printed and circulated for the assistance of the gentlemen who would undertake to canvass for consumers. This, he thought, would disabuse the public mind of the many unfounded charges which had been brought against the company, and would also make known the superior advantages which it offered to the consumer.

Mr. Pearse said he should move that the report should be printed *verbatim et literatim*. He did not see why the report should be curtailed, unless there was something in it that they were ashamed of. ("Hear, hear," and loud laughter.)

Mr. Thwaites was not aware that the report contained anything that would reflect the least discredit on the company; but his object in suggesting that it should be condensed was that the facts which it set forth might be comprised in as small a compass as possible, and that, as it was a rather lengthy document, some expense might thus be saved in the printing.

The Chairman thought Mr. Thwaites's suggestion as a very valuable one, and the directors would certainly act upon it, and furnish the consumers with a copy of the report in a condensed shape.

The report was then adopted unanimously; Mr. Pearse, however, protesting against the publication of what he considered would be a garbled report.

A dividend at the rate of 7½ per cent. per annum, deducting income-tax, was declared without dissent; and, on the motion of Mr. Allen, seconded by Mr. Hanley, it was agreed that the sum of £1000 should be paid to the directors for their services from the 1st of January, 1852, to the 1st of January, 1853, to be divided by them in such manner and in such proportion as they might think fit.

On the motion of Mr. Hall, Messrs. Bovill, Clemow, Massey, and Virtue, the retiring directors, were re-elected *nem. dis.*, and a vote of thanks was accorded to the Chairman and the Board of Directors for their past services.

The Chairman, in briefly acknowledging the compliment, invited all shareholders who were desirous of co-operating with the directors in their canvass, to meet them at their offices in Coleman-street.

Mr. Pearse requested to be allowed to put a few questions, but was interrupted by

The Chairman, who said that, with deference to Mr. Pearse, the business which at present occupied the attention of the meeting was of more importance than could be Mr. Pearse's inquiries. Mr. Dakin then read a list of names which had been handed in to him of gentlemen who volunteered their services on the canvassing committee; and some shareholders, amid roars of laughter, suggested that Mr. Pearse's name should be added to the number. The Chairman, however, said that Mr. Pearse, who had an interest of some £5000 or £6000 in the Chartered Company, and only £10 in this (the Great Central), could not be expected to take any share in a movement for the promotion of the interests of a concern competing with that in which he had so large a stake. (Laughter.)

Mr. Pearse said that, as he had been twitted with regard to his interest in this company, he could only say that, if the chairman placed ten shares more in his name, he would at once give him a cheque for £100. (Laughter.)

The Chairman said that Mr. Pearse could have the shares, but he must not expect them at par.

Mr. Pearse confessed that there were really some things in this company—the publication of the report and accounts, for instance—which he liked very much better than the system adopted in the old companies. (Cheers and laughter.) He had, however, a few questions to ask, which he hoped would be answered truly and satisfactorily. The first related to the chemical officer, who was appointed on Feb. 27, at a salary of £100 a year. He (Mr. Pearse) wished to know how it came that, since that sum was fixed as the referee's salary, £148. 19s. 2d. had been charged under that head in the accounts?

The Chairman said that Mr. Pearse himself would doubtless be aware that, from the commencement of the company, they had availed themselves of Dr. Leeson, one of the most eminent chemists of the day. The directors had felt that they had a very responsible duty to perform; and, however high might be the estimation in which they held their contractor, yet they had deemed it desirable to have some independent referee whose aid they could call in to their assistance, from time to time, as might be considered necessary. He (the

chairman) scarcely considered it necessary to inform Mr. Pearse that, when the directors employed a professional man, they always paid him. ("Hear, hear," and a laugh.)

Mr. Pearse said that his next question was with reference to the charge of £211. 8s. for auditing the accounts. He wished to know whether this charge was not a very exorbitant one, seeing that, in one other gas company, of which he was a member, the auditors considered themselves well remunerated if they were paid five guineas each? (Hear, hear.)

The Chairman said that this company paid their auditors £3. 3s. a day, with £1. 1s. a day extra for their clerk. The audits which were comprised in the charge of £211 extended over a very long arrear of accounts, and it was considered desirable by the directors that the auditors should adopt such methods of arrangement as might appear to them best for facilitating the performance of their duties hereafter. Their last bill for auditing (which would be included in the present half-year's accounts, not yet published) was only £71, which showed that the expense of which the honourable proprietor had complained had only occurred in the first instance.

Mr. Pearse asked how it was that the present accounts did not include the attorneys' bills?

The Chairman replied that, as these unfortunate expenses had only been incurred in December, when these accounts were completed, it could not be expected that the bill should have been rendered so early as this.

Mr. Pearse: That, then, was one of the evils to come. (Laughter.) Now, he should suggest that they should publish their report entire.

The Chairman said he should not allow Mr. Pearse to reopen that question, as it had been already settled.

Mr. Pearse said that he had, then, further questions to ask. Did the difference between the paid-up capital and the sum expended give them a sufficient working capital?

The Chairman said that was a matter which must be left to the directors, who certainly did not think it always desirable to have a superabundant floating capital.

Mr. Pearse: Had any reserve been yet made for the two years and a half deterioration of the plant?

The Chairman said that that question had been fully answered in the report. This company was not situated like ordinary companies; for their plant, &c., was kept in repair by the contractor, and their meters by the manufacturer. The directors had, however, thought it better to err on the right side, and had, therefore, set apart £1200 a year as a provision for any expenses which might have to be defrayed under that head.

Mr. Pearse said that his concluding question was this: Might the proprietors look for the continuation of 7½ per cent. dividend, as now declared? (Loud laughter.)

The Chairman thought this was going rather beyond the bounds of what might be reasonably supposed to be the limits of a question. Mr. Pearse had observed that there were many things he liked better in the present company than in the old one; and he (the chairman) supposed that this perpetual 7½ or 10 per cent. was one of those things which Mr. Pearse liked so well—(loud laughter)—especially seeing that Mr. Pearse had acknowledged that the Chartered Company only paid 1¼ per cent., and made up the rest of their dividend out of capital. (Renewed laughter.) He (the chairman) was then in a position to assure Mr. Pearse that not only would 7½ per cent. dividend be continued to the shareholders, but that they would receive 10 per cent. and pick up the 2½ which they had for the present dropped, and also, at no very distant period, be enabled to reduce the gas to 3s. 6d. a 1000.

Mr. Pearse said that he was ready to increase his stake in the company to 20 shares more—at *par*. (Laughter.) Mr. Pearse then addressed some questions to Mr. Croll, relative to a conversation he had with him in his dry-meter counting-house, at Clerkenwell, on Thursday, the 23rd of December last, in which he reminded him that gas proprietors owed him "Scotch gratitude" for the destruction of gas property in London and elsewhere, but, not receiving any reply, he directed the attention of the shareholders to an advertisement in the supplement of the *Times* that day, containing a requisition for tenders to the Court of Sewers for the supply of the public lights. He hoped that the directors would look to that question well, and not throw away the funds of the company in supplying those lights at 2s. per 1000.

The Chairman said that he had given Mr. Pearse every latitude; and Mr. Pearse asked his questions so good-humouredly that it certainly gave some entertainment to the meeting, and came like the farce after the genteel comedy. (Laughter.) It could not be supposed, however, that Mr. Pearse was to be allowed to come there and lecture the directors as to what they were to do. (Hear, hear.) The company, he might say, did not rely on the public lights as the foundation of their success, and the directors did not care about leaving their supply to some other company whose affairs were more desperate.

Mr. Pearse: This company, however, did take the public lights one year.

The Chairman: Yes; and then we got a profit of £3000 from them; while your company took them afterwards at a lower price.

Mr. Pearse: That I deprecate. Mr. Pearse then moved—"That this meeting disapproves of the money of the proprietors being expended in laying mains and services for distributing gas in districts hitherto unoccupied by this company, and also of the principle of supplying public lamps at a less price than that charged to private consumers, because such outlay tends only to magnify the embarrassment consequent on excessive outlay, without any probable chance of an adequately productive income." (Loud laughter.)

The motion not meeting with a seconder, fell to the ground, and the proceedings then terminated with the customary tribute to the chairman.

CITY OF LONDON COURT OF SEWERS.

Tuesday, April 12, 1853.

W. A. Peacock, Esq., Deputy, in the chair. After the ordinary business of the day, the Surveyor's Report upon the condition of the contracts for lighting the public gas lamps, which was laid before the court at its last sitting, was taken into consideration.

The Chairman said that, as the report had now been in the hands of the commissioners for a week, he thought they might at once proceed to discuss the questions submitted for their consideration by the surveyor.

Mr. Daw, the Chief Clerk, then read the first question, which was—"as to the propriety of letting the contracts for lighting for three years instead of one year, as heretofore had been the custom."

Mr. Deputy Bennoch thought there could be no question as to the propriety of this recommendation. Indeed, when he last week moved that the report be printed, he felt that he was putting into the hands of the commissioners the best report which had ever been submitted to them. Better or more logical arguments he had never read, and such, he felt sure, they would appear to the minds of every member present. The fact of the necessity of having the streets opened once every year, as might be the case, now that there was so much competition, was a good reason why they should adopt some such recommendation as that under consideration. Besides, it might induce the companies to charge a lower price for the article, inasmuch as they would save the money which they now expended in opening the streets, attaching pipes to the mains, and in other work rendered necessary by a change of contract. At all events, as it was well said by the surveyor, there must be a point at which the inconvenience sustained by opening the pavements would not be compensated for by the reduction of the price of any article supplied. He, therefore, had much pleasure in moving that the contract for lighting the public lamps be for a period of three years from Midsummer next ensuing.

Mr. Deputy Bedford seconded the motion.

Mr. Deputy Corney said he should like to know whether it would not be better that there should be in the specifications a statement made to the effect that tenders might be offered for *one* and for *three* years. He wanted to have a check upon those gas folks. They could hardly expect they would make a reduction in price for one year; but he would like to try what difference there would be in an offer for one and an offer for three years. (Hear, hear.)

Mr. Deputy Bennoch assented to this alteration, which was supported by Mr. Deputy Lott, who thought it a very good idea.

The resolution was then put and carried.

The Chief Clerk then read the second recommendation, which referred to "the propriety of substituting other and what burners for the 586 cockspur burners within the City, and whether those burners should consume the present amount of gas, namely, 3½ cubic feet per hour, or, like the existing batswings, 5 cubic feet per hour."

Mr. Deputy Bennoch proposed that the cockspur burners now in use, and which consume 3½ cubic feet per hour, be removed, and their places supplied by batswings, consuming 5 cubic feet per hour; and that these be the only burners used in the City.

This motion having been adopted,

Mr. Deputy Bennoch moved that the contractors should, at their own cost, provide places in which to test, from time to time, the gas supplied to the public lamps, under such regulations as the commissioners might direct.

Mr. Deputy Holt seconded the resolution.

Mr. Deputy Lott said he should have been very glad if this matter had been taken up by some other person than Mr. Bennoch; because he, being a party interested in one of the companies, was precluded from voting on the subject as a commissioner by act of Parliament. (Hear.)

Mr. Deputy Bennoch: I don't intend to vote.

Mr. Deputy Lott: Well, then, I think the proposition would have come with a much better grace from some one else.

Mr. Deputy Bennoch: I can take any part in the debates on such subjects, but when it comes to the vote I shall take no part in that.

Mr. Deputy Lott: The proposition which is before the court is, I presume, based upon some remarks of the surveyor in his report. I am sure that I, for one, have read that report with great pleasure, and feel greatly obliged to the surveyor for the information it contains. But I demur to the principle it seems to enunciate, that pressure will be a test of the purity of the gas. If the pressure is to be regarded as a test of purity, I, for one, should disbelieve it. We all very well know that it may be a test of the quantity of gas supplied, or of that which, by some flight of fancy, may be called gas, but which in reality is mere atmospheric air, commonly called wind; but I am certain that we cannot estimate from pressure the quality of the article. I believe that any immoderate pressure would deteriorate the light; it would smoke the glass, and by that means we should get a worse light. Whatever else is suggested, I hope that pressure will not be the test of quality.

The Surveyor: I hope the court will give me credit for knowing that pressure cannot be accepted as a test of quality. It is simply a test to enable you to decide upon the average quantity consumed per hour by the public lights, in order to obtain a certain amount of illumination. This can only be done by requiring that the company tendering shall not only undertake to supply gas of a specific illuminating power, but that it shall be effected with a specified average pressure. (Hear.)

Mr. Deputy Bennoch: No doubt, gas of a low illuminating power may appear to be a better article than it really is, by subjecting it to a higher pressure. That is our experience. We ourselves have excellent gas as tested by the photometer; but, if we have not sufficient pressure, it does not give that satisfaction which it ought to do. The chief complaints are for want of pressure. For the purpose of regulating the pressure throughout the whole of our districts, we

have a direct communication from the office to the works, so that we can at any moment increase the amount of pressure.

Mr. Deputy LOTT: I must still demur, though with great humility, to the opinion of so great an illuminating power as the worthy deputy (Mr. Bennoch). I must still maintain that no amount of pressure will convert bad gas and wind into good gas; and I would suggest to the worthy deputy that we are here as commissioners of sewers, and not as representatives of any company whatever; and as, Cæsar's wife should be above all suspicion, I repeat that I should have much preferred the proposition if it had come from some one else. (Hear.)

The CHIEF CLERK: By your existing contracts it is not necessary to call upon the company to have a place in which to test the gas; but you can put on a pipe any where you please, and try it.

Mr. Deputy CORNEY: It will be far better to have a place for the purpose. The commissioners will not object to provide it.

Mr. Deputy BENNOCH: That is my impression.

The proposition was then agreed to.

The CHIEF CLERK then read Mr. Heywood's third suggestion, "as to taking any and what means to ascertain that the proper amount of light is given by the street lamps."

Mr. Deputy LOTT moved that it be referred to the General Purposes Committee to examine and report upon, as it was too large and important a question to settle off hand. It would not do, he thought, to take the dictum or dogma of any gas proprietor present, however talented or influential he might be. It was a question which involved all the points of purity and pressure, and should, therefore, be referred to the General Purposes Committee.

Mr. Deputy BENNOCH: We have an inspector already.

Mr. HEYWOOD: But that is only for one company.

Mr. Deputy BENNOCH: It is a very desirable object to make all comply with the same tests.

Mr. Deputy STEVENS: I think we ought to do all in our power to give our fellow-citizens the best light, without regard to any company whatever. Let us try all the companies, and see which is the best.

Mr. Deputy OBBARD: The question involved in this proposition is not that of trying any or all the companies, but how to secure the best light when we have contracted with one.

The SURVEYOR: If you refer the matter to a committee, it will be for them to determine the *modus operandi*. They may, perhaps, leave the question with myself, or Dr. Letheby, or some one else.

The CHIEF CLERK: To refer it to a committee will very much delay your contracts.

Ultimately, it was resolved to refer the matter to the surveyor.

It was also resolved that the public lamps, in certain places alluded to in the surveyor's report, as having been heretofore lighted partially at the expense of the inhabitants of the locality, should, in future, be paid for out of the funds of the commission.

The court then adjourned.

REPORT TO THE HON. THE COMMISSIONERS OF SEWERS OF THE CITY OF LONDON, UPON THE CONDITIONS OF THE CONTRACTS FOR LIGHTING THE PUBLIC GAS LAMPS.

TO THE HONOURABLE THE COMMISSIONERS OF SEWERS OF THE CITY OF LONDON.

Sewerss' Office, Guildhall, April 5, 1853.

GENTLEMEN.—As the time is now approaching when it will be necessary for you to advertise the contracts of the public gas lighting for the ensuing year, I beg to submit for your consideration, the expediency of letting such contracts for a term of three years instead of for one year only, as hitherto has been the custom.

My reasons for advocating this may be gathered from the subjoined statement. For many years, up to the period of the incorporation of the Great Central Gas Consumers' Company, your honourable court is aware that the City was partitioned between the City of London Gas Light and Coke Company, and the Chartered Gas Company, who alone gave the supply both for public lighting and for private consumption; the boundary line of these two companies was well defined, and no attempt at infringement of it was made at any time by either of them, for competition between those companies was a thing unknown, and between them and other companies impossible, as the latter were carefully prevented from opening pavements and laying down pipes within the municipal jurisdiction; although, therefore, public advertisements were annually made inviting tenders for lighting the public lamps, competition there could not be, inasmuch as the other companies were without its pale, and those between whom the City was partitioned only tendered for the lighting of their respective districts.

At first sight nothing would appear to have been gained by this annual form: in effect, however, it was this—that it brought periodically the companies before the commission, who, being aware of the reductions in the price of gas, that the unrestricted competition in other parts of the metropolis, together with the enlarged consumption of gas were gradually producing, were enabled then to submit such facts to the companies, and require what appeared from time to time to be a commensurate reduction in the price of the private supply to the citizens, as well as to the public lamps; and practically the result was, that between the year 1823 and the year 1849, the gas was reduced in price by the two companies from 15*s.* to 5*s.* per 1000 cubic feet, for that supplied to the private consumers, and the batswing burners of the public lamps from £5. 5*s.* to £4. 4*s.* per light per annum, and the cockspur or three-hole burners from £3. 3*s.* to £2. 14*s.* per light per annum. The system of annual tendering was therefore of advantage, by producing reduction in price, and such advantage was at no time counterbalanced by the evil of the disturbance of the pavements for effecting it.

The circumstances attending the formation of the Great Central Gas Company are well known to you. Its incorporation was the root of a long-impending organic change in the business of gas-selling within the City and throughout the metropolis; a change probably not yet complete in all its phases. Its operations were of course primarily felt within your territory. At Christmas, 1849 the Chartered and City Companies reduced their price from 5*s.* to 4*s.* per 1000 cubic feet to private consumers; and in the year 1850 the contracts for lighting the public lamps having been as usual advertised, there was for the first time, for many years previously, a *bona fide* competition between the two rival companies, and the result was the letting to the Great Central Gas Consumers' Company the public lighting of the whole City, at a reduced rate, equivalent to a reduction for that over the previous year of about £730. The public had, however, to submit to the inconvenience of having about 1650 holes opened in the pavings for the purpose of laying on the supply pipes to the public lights alone.

Last year (1852) tenders for public lighting were again received for the year terminating Midsummer, 1853, when, the Chartered Gas Company having tendered a reduced price for lighting the district originally lighted by them, it was again let to that company, the Great Central Gas Company retaining the remaining portion of the City at the same rate per lamp as during the previous year, but making alteration in certain of the burners, to which I shall presently allude: by this letting, a further sum of about £260 was gained, so that the lighting of the public ways of the City of London, for the years 1852-3, will be effected at the sum of about £990 less than that at which it was effected for the years 1850-1; owing to this reletting, however, the portion of the City of the Chartered Company, and the consequent reconnection of their supply-pipes, and the disconnection of those of the Great Central Gas Company, about 1093 holes were again opened in the pavements.

Thus, although within the last two years a considerable saving has been effected by the competition of the companies, yet the public has suffered by the inevitable opening of the pavings; and it is with the hope of preventing or diminishing the chance of this annual irruption of the public ways, which otherwise threatens to occur, that I now submit the expediency of letting the public lighting for a term of three years from Midsummer-day next.

In doing so at the present time I believe your honourable court will still reap all the advantages that may be anticipated from competition, if the price of gas, and the circumstances attending its make and sale within the City, were the same as those in the years 1849-50, or previous to that date; if a large reduction in the price of gas generally was still expected to have its ultimate influence upon the price of lighting public lamps, I should hesitate to advise this; but an extraordinary reduction has already taken place, and it cannot be reasonably expected that any similar reduction to that of the last few years can follow in the three years next approaching. When the whole City was permitted to be furrowed for laying the pipes of the new Gas Company, it was after mature deliberation, and in the hope of the realisation of a large annual saving to the citizens of London, that compensation was sought for the inevitable convenience suffered. The same may be said when for the first time competition existed, and the Great Central Company lighted the public lamps at a reduction of £730 per annum; and the same, although in a much smaller degree, when a portion of the lighting was relet last year to the Chartered Gas Company; but consideration of the prices now paid for lighting the public lamps indicates plainly that proportionate reductions to those may not be expected for many years to come, although it is quite within the limits of probability that further reduction may yet be made; but there must be a point at which the inconvenience sustained by the opening of the pavements will not be compensated for by the reduction in price, and this point, arguing from the proceedings of the few past years, it seems to me is at hand, and a system of annual letting may therefore in future simply cause the supply for public lighting to oscillate between two companies, bringing annually all the inconvenience alluded to, with inadequate gain, and that all the *actual* gain may now be realised by letting the contract for a term of three years instead of annually as heretofore.

If at the end of the third year either fresh discoveries or economies in the making of gas, or other circumstances tending to reduce the price of gas, have come into operation, you will at that time again reap the benefit of them by public competition.

I should not omit to state my belief also that it will, under present circumstances, of itself, produce a greater reduction in the amounts tendered for the public lighting, if the contracts are for three years certain instead of for one year only; as it may readily be conceived that a guaranteed consumption of 52,731,002 cubic feet of gas annually (about the quantity consumed in the public lights) may enable the gas companies to make arrangements by which they not only may be able to supply gas cheaper, but also gain from that supply more profit. It must be recollected that every opening which is made in the pavement for alteration in the pipeage involves an expenditure which, being at first paid for by companies, would, unless returned to them in some shape, diminish the profits derivable from the public lighting; and as it incontestably the case that the consumer of an article must in the price of that article pay all the costs and charges expended in its make or procurement, so I conceive that the expenses of opening the pavements and laying on the supply of pipes is ultimately paid for by the commission in the price of the lights; and as the cost of reconnecting or laying on the supply-pipes is the same whether the work be done for one year or three, it is clear that a company who could distribute the reimbursement of such outlay over three years instead of one, could *cæteris paribus* afford to light the public lamps at a cheaper rate per annum if for three years instead of one year; and that therefore the commissioner would, by letting for three years, not only prevent public inconvenience from the frequent irruptions of the pavements, but in so doing husband likewise the public purse—conditions rarely compatible in arranging for the carrying out of public works.

I now beg to submit to your notice other points in connection with the futnre gas contracts, upon which I need your instructions before

drawing up the terms of the specification upon which the tenders must be made.

When tenders were received last year, the Great Central Gas Company, after stating the sums for which they were willing to light the batswing and cockspur burners respectively, proposed, in addition thereto, to substitute batswing for all the cockspur burners, but charge to the commission for the batswing burners thus substituted the price only tendered for the cockspur; this offer was accepted, the cockspur burners were accordingly changed, and the whole of the burners within their district are now batswing burners, consuming five cubic feet per hour.

Now, the nominal consumption of the two descriptions of burners has been, by the batswing five cubic feet per hour, or 21,900 cubic fee of gas per annum; by the cokspur 3½ cubic feet per hour, or 15,330 cubic feet per annum; the excess of the consumption of the former over the latter being nominally 6570 cubic feet, and the price for lighting them for a period of thirty years varied proportionately: in 1823 the batswing being £2. 2s., and in 1850 £1. 10s., per annum more than the cockspur; the proposition of the Great Central Gas Company was to me therefore somewhat perplexing, and consideration appeared to reduce the reasons by which it could be accounted for to two (but neither of which I confess are highly conclusive to me), either that the price at which they undertook the lighting of the batswings was sufficient to cover the loss upon the cockspurs, or that the actual consumption of gas by the two descriptions of burners was practically more close than was generally supposed.

Shortly afterwards, upon making inquiry, I was informed by the engineer to the Great Central Company that the cockspur burners (taking an average of them after they had been in use some time), although nominally consuming 1½ cubic feet per hour less than the others, really consumed a quantity approaching much more closely that of the batswing.

When investigating this point, I included another in relation to burners for the public lights. I had long noticed that the cockspur burners appeared to give a very inferior amount of light to that of the batswing. I mean that they appeared to illuminate in a lower degree relatively than even the difference between the nominal average consumptions of the two descriptions of burners would account for. Your district inspectors were of the same opinion; and upon mentioning the subject to various officers of the gas companies, they informed me that they believed such to be the actual fact, and that the three-hole burners were not those by which gas was advantageously consumed. To satisfy myself, I therefore undertook some photometrical experiments, and am now fully convinced that, by the cockspur burners, combustion is not so perfectly effected as by the batswing; that the full illuminating power of the gas is not obtained; and that other burners should be substituted for the cockspur now upon the public lamps within the City.

The cockspur burners, of which 586 existed within the City before last Midsummer, and which will be again existing when the Great Central Company have restored those they have removed at the expiration of their present contract, have been principally applied in courts and other places where, for police reasons, it appears to me expedient to have at least as good a light as in the public streets—indeed, there are numerous complaints of their feeble light wherever they are in use, and they are not unfrequently, upon complaint, changed for batswing. I am induced to believe, also, that complaints have been made of want of light occasionally, and additional lamps accordingly placed, which would not have been asked for had the full-sized burners been in use upon the adjacent lamp-posts. They were originally introduced for economy, when the price of the public lights was considerably more than it now is, and when less light was thought essential for public ways than is now deemed necessary; as the charge for public lights has been reduced, so the absolute saving effected by using cockspur burners has been diminished, although up to the last year, when the Great Central Company made the offer adverted to, the prices tendered for the burners, respectively, had maintained a proportionate difference; the modicum of light afforded by them has, however, remained nearly the same.

Now, if I am correct in what I have before stated, it follows that the cockspur is not relatively an advantageous burner for public lamps; and, I submit, it is a point well worthy of the consideration of your honourable court, whether it may be expedient to direct that other description of burners be substituted for the whole of the cockspurs now upon the public lamps within your jurisdiction. And if it may be expected that the proposal made and accepted last year, and subsequently acted upon by the Great Central Company, of substituting the batswing burners, consuming 5 cubic feet per hour, for the cockspur burners, consuming 3½ feet per hour, without additional charge, is likely to have any effect in future contracts in diminishing considerably the difference between the prices hitherto paid for the two descriptions of burners, then, having in view the localities where the existing cockspur burners are for the most part placed, it may be thought worth while to substitute the others, and have batswing burners, consuming 5 cubic feet per hour, solely used for the public lamps within the city of London.

For other reasons, I believe that this latter arrangement would prove of the most advantage, not only frem the increased light being given in places where light certainly must be said always to be bestowed with much benefit, but also by rendering the system more simple and uniform, and enabling the amount of light which should be afforded by the public lamps more easily to be judged of by the eye. At the present time, if a feeble light is shown by a lamp, the great dissimilarity in the flame from the two descriptions of burners enables it to be seen in a great degree, whether it is attributable to the burner or to the defect in supply; but if batswings are solely used, a portion of them burning 3½ cubic feet, and the remainder 5 cubic feet per hour, the shape of the flame being the same in both cases, I fear it will often lead to complaint that insufficient supply is given for certain lights, when it may really be attributable to the size of the burners; but if all are equal in size, so the lights at the same time should be equal, or nearly so; and a feeble light showing in any part of the City, when in other parts the light is strong and bright, would indicate at once to the eye a deficiency in the supply, or some other defect needing remedy.

There is another point to which I feel it my duty to allude. When a quantity of gas is specified to be upon the average consumed per hour by a public light, it is done with a view of obtaining from such burner a certain amount of illumination; the mere passing of a fixed quantity through each burner per hour will not guarantee that the end, *i.e.*, the required modicum of light, shall be obtained, as it is quite possible to pass gases, the strength or power of which shall vary so considerably, that four cubic feet of one shall exceed in illuminating power five cubic feet of another; neither is the size of the burner of itself a guarantee even that the specified quantity shall be passed through it, as the quantity which will issue from a burner of a known gauge, depends entirely upon the pressure in the main supplying it, and which main is dependent upon the pressure given at the gas works; the absolute pressure varying almost every hour of the day, and in every district of the City. Hitherto no means have been taken to obtain any check upon the gas companies—the eye, although by slight education, it detects with considerable nicety—relative quantities of light cannot of course be depended upon, and opinion formed by its aid alone necessarily would be subject to disputation; and the only means which it appears to me can be adopted for ascertaining that a proper and specified amount of light is obtained, is to require that the companies tendering for public lighting, shall undertake to supply gas of a specific illuminating power, and that it shall be delivered with a specified average pressure, and that a competent person, employed by the commission, should from time to time ascertain the pressures, either by reference to the pressure registers kept at all gas works, or by other means, and also remove indiscriminately from the public lamps a certain number of the burners, subject them to the proper pressure, and check their consumption, and, at the same time, ascertain that the gas is not below the standard of illuminative power.

There are within the City four public lamps, the annual charges of which are divided between the commission and persons owning the adjacent properties—one of these is situated in Blue Hart-court, Aldersgate-street; another at Hercules-passage, Broad-street; a third in Plough-court, Lombard-street; and the fourth in Tobacco-Roll-court, Gracechurch-street. The origin of this division of payment (of which more cases formerly existed than at present) probably was attributable to the large price of gas at that time, and in some degree perhaps to the question of right in the respective places being doubtful, and desire, for police reasons, to induce the proprietors to place lights, may also have had its share in producing the arrangement. None of these reasons now can have much weight—the gas lights are cheap—the commission have power to compel owners of property to light their own premises—and, as it is manifest that that which is clearly public way should be lighted out of the public funds, and that which is not public should not be paid for out of that purse—so I submit it is expedient that the commission should either pay for the whole, or discontinue paying any portion towards the lighting of these four lamps.

The questions submitted for your consideration in the preceding pages are:—

1. As to the propriety of letting the contracts for public lighting for three years, instead of for one year, as heretofore has been the custom.
2. As to the propriety of substituting other and what burners for the 586 cockspur burners within the City, and whether those burners shall consume the present amount of gas, namely, 3½ cubic feet per hour, or, like the existing batswings, 5 cubic feet per hour.
3. As to the propriety of taking any and what means to ascertain that the proper amount of light is given by the street lamps.
4. As to the propriety of either paying entirely for or discontinuing to pay the moiety of the expenses of lighting the public lamps in certain places alluded to.

* * * * * *

I have the honour to remain, Gentlemen, your most obedient servant,

WILLIAM HAYWOOD, Surveyor.

SPECIFICATION OF THE TERMS OF CONTRACT FOR SUPPLYING WITH GAS, LIGHTING, AND MAINTAINING, &c., OF THE PUBLIC LAMPS WITHIN THE CITY OF LONDON FOR A TERM OF ONE YEAR, OR FOR A TERM OF THREE YEARS (AT THE OPTION OF THE COMMISSIONERS OF SEWERS FOR THE CITY OF LONDON), FROM THE 25TH OF JUNE NEXT ENSUING, 1853.

The company agreeing to light the public lamps are, at their own costs and charges, to the satisfaction of the surveyor for the time being, of the Commissioners of Sewers of the City of London, or any other officer to be appointed by them for superintending the lighting of the said City or any part thereof, for and during the term contracted for, to light with gas all the public lanterns which are now or may hereafter be set up or affixed within the district tendered for, every night at or before sunset in each day, and continue them lighted until at or after sunrise in the following day, at the tendered amount per light per annum that may be agreed upon between the company and the commission.

The burners for lighting the public gas-lamps are to be of the description commonly known as batswing. Their consumption is not to be less than five cubic feet per hour, and the gauge of the burner is to be such that, with the cocks turned full on, and under a pressure of gas of five-tenths of an inch, the quantity of five cubic

* No ordinary batswing burner will give a flame of these dimensions with a consumption of less than 7 feet per hour of gas of the standard illuminating power mentioned in a succeeding paragraph. The three-slit or Gaumont burner might probably give it with 5 feet, but the flame would not be "regular and nearly level at the top."—ED. J. G. L.

feet of gas shall pass through them per hour. The dimensions of the flames when consuming the specified quantity, are to be not less than an average of 3¼ inches in width and 2¾ inches in height,* and be regular and nearly level at the top; and the commission shall have full power to affix meters, remove burners from time to time from the lamps, or adopt any means that may appear to them necessary, either to test the pressure or size of the burners, and enable them to see that the stipulated quantity of gas is supplied to the public lamps.

The commission will, at their own costs and charges, erect and maintain the posts, columns, and brackets; but all the mains, pipes, services, stopcocks, plugs, tubes, burners, and other apparatus required for lighting the lanterns, shall be from time to time supplied and affixed by the company at their own costs and charges; and it is to be understood that all the existing cockspur burners now upon the public lamps within the City are to be removed on the 25th day of June next; and batswing burners, consuming five cubic feet of gas per hour, are to be substituted for them by the company; and the company shall keep the main pipes and services constantly clear for the passage of the gas through them, and also shall, once in every week, or more frequently if the surveyor or other officer shall think it necessary, cause the lanterns and burners to be well and properly cleansed, so that a steady and uniform light be at all times maintained, and all such cleansing is to be done under the direction, and to the satisfaction, of the surveyor or other officer of the commission. And the company shall, at their own costs and charges, find and provide all labour and materials which may be necessary or required for such purpose.

The company shall, at their own costs, repair and amend, to the satisfaction of the surveyor to the commission, all the lanterns, frames and glass, main pipes, services, stopcocks, plugs, tubes, burners, and apparatus, throughout the various streets and places, as shall be broken or damaged, with twelve hours after notice in writing shall have been given by any accredited officer or servant of the said commission to the surveyor or engineer of the company.

The company shall, at their own costs and charges, once at least during every twelve months, paint, in a workmanlike manner, twice over with good oil colour, all the lantern irons and lantern frames; and such painting shall be performed between the 25th day of June and the 28th day of September in each year; such painting to be done under the direction, and to the entire satisfaction, of the surveyor for the time being to the commission.

The commission shall be empowered, at any time during the term of the contract, to direct that the use of any of the service pipes, cocks, burners, and apparatus, now set up, laid down, or affixed, for the supply of gas to the public lanterns within the said district, shall be discontinued; and the company shall thereupon, at their own expense, cause the same to be removed; and in case the company shall neglect to remove the same within three days, after notice to that effect, the commission shall be at liberty to remove the same, and charge the expense of such removal to the company.

In the event of the commission discontinuing any existing lamp, between any of the usual quarter days, the amount that shall be allowed to the gas company for lighting the lamp from the previous quarter day, shall be determined by the surveyor to the commission, and in the event of any additional lamps being set up, the amount to be paid for the lighting, during the period between the first time of lighting and the quarters day next ensuing, shall also be determined by the surveyor to the commission, after which time the lamp is to be paid for at the same rate per quarter as the other lamps. And in all such cases the award of the surveyor shall be final and conclusive.

The gas supplied by the company for lighting the public lamps shall be of such quality as to produce, from an argand burner having fifteen holes and a 7-inch chimney, and consuming five cubic feet of gas per hour, a light equal in intensity to the light produced by twelve wax candles, of six in the pound, burning 120 grains per hour.

For the purpose of enabling the commission to ascertain that the quality of the gas supplied to the public lights is not behind the standard in purity and illuminating power, the company shall provide at their works a laboratory, with proper apparatus, for enabling any officer or person authorised by the commission, at any or all times, both by night or by day, to test the quality of the gas supplied; and to the said laboratory the officers of the commission are at all times to have access; and the company will be also required to lay on the gas, without charge to the commission, to any office or laboratory within the City, that may be provided by the commission for the purpose of enabling similar tests to be made, should the commission think it necessary. The pressure register books of the company are also to be at all times open to the inspection of the officer or other person authorised by the commission, to make such inspection, and they are to be permitted, from time to time, to make such extracts from the said pressure register books as they may think proper.

If the said company shall, from wilful neglect or any other cause, fail to comply with the provisions of this contract, it shall be lawful for the commission, upon breach or non-performance by the company of any agreement herein specified or understood, to employ or contract with any other company or person for lighting with oil, or gas, or in any other manner, all or any of the streets and places; and the company shall reimburse to the commission such sums of money as they shall pay, or be liable to pay, under any contracts that may be entered into by them in pursuance of this provision, and shall pay and discharge all fines and penalties to which the company shall be subject, as well as all costs, charges, and expenses which the commissiom may incur or sustain by reason of any such breach or non-performance of their contract.

All the fines and penalties hereinafter specified and described, which may be imposed from time to time upon the company, shall be considered as liquidated damages, and the same, together with all other sums of money which may be payable to the commission, by virtue and under the clauses of this specification, shall be paid by the company to the clerk for the time being of the commission, at the office of the commission, in the Guildhall of the City of London; and in case of nonpayment of any such fines, penalties, and sums of money, it shall be lawful for the commission to deduct and retain the amount out of the moneys which shall become payable by the commission to the company for lighting the public lamps within any portion of the City; and in case this same shall exceed the moneys which shall become payable to the company, then such excess may be recovered by the commission as the law directs.

The company shall save harmless and keep indemnified the commission from all costs, charges, damages, and expenses which they may sustain or incur by reason of any breach, neglect, or default of the company, in any of the covenants and provisions hereinbefore contained, and from and against all actions, suits, claims, and demands which may be commenced, prosecuted, or made against the commission, in respect of any accident or injury that may arise by reason of the extinguishment of any of the lights in the said streets or other places, or from any other cause whatsoever, arising out of or connected with the lighting of the public lanterns contracted for, or on the supply of gas for the same.

The company agreeing to light the public lamps shall not be permitted to assign or otherwise dispose of or part with the contract to any of the company or person whomsoever without the consent of the Commissioners of Sewers, signified in writing, under the hand of the clerk. Or if the company lighting the public lamps within the City shall be guilty of any wilful breach or non-performance of any of the covenants and provisions contained, it shall be lawful for the commission, if they shall think proper so to do, to determine and put an end to the contract upon the expiration of fourteen days after notice in writing, under the hand of their clerk for the time being, shall have been given to the said company; and in such case, the contract, and the covenants and agreements therein contained, shall henceforth cease and be absolutely null and void to all intents and purposes whatsoever.

The payments will be made by the commission to the company quarterly, and the company is to make out the bills for the lamps in such form or manner as the commission may require.

PENALTIES.—In the event of its being satisfactorily proved to the commission that in any of the particulars hereinbefore mentioned and described, the contract has not been complied with, the company is to forfeit and pay to the commission the following sums of money:

For allowing burners to be fixed or remain which, under the given restrictions, do not consume 5 cubic feet of gas per hour—for every offence	£20	0	0
For supplying gas inferior to the prescribed standard in illuminating power—for each offence	100	0	0

And, in addition thereto, a sum of £10 for each day after notice in writing from the authorised officer of the commission during which the gas shall so continue below the standard.

For every time that a lantern-glass, service-pipe, or stopcock, shall not be repaired within 12 hours after notice from the officers of the commission	0	10	0
For not duly cleansing the lanterns or burners, for each lantern or burner per night	0	2	6
For not supplying each burner with the full quantity of gas, or for not maintaining the lamps properly lighted for the full time specified between sunset and sunrise, for each burner per night	0	10	0
Ditto, dito, ditto, if five or more than five lights in any one street or other place—for each offence	20	0	0
For not painting the lantern-frames within the time and in the manner specified—per lantern	0	10	0

Tenders are to be made for lighting the batswing burners, consuming 5 cubic feet per hour, under the condition as hereinbefore described.

If for a term of one year, from June 25 next ensuing, at per burner per annum, £———

If for a term of three yeyrs, from June 25 next ensuing, at per burner per annum, £———

(Signed) WILLIAM HAYWOOD, Suryeyor.

Sewers Office, Guildhall, April, 1853.

WINCHESTER GAS WORKS.—Persons interested in gas works, and who are desirous of seeing the practical working of "my process and system," are recommended to pay an immediate visit to the abovementioned works. The shareholders are summoned to meet on the 10th inst. to consider an offer made by Mr. Croll to take them upon lease. It is high time that something should be done to appease the storm which the supply of bad gas in uncertain quantities has created among the consumers in this ancient city.

YOUNG'S PATENT.—A bill has been filed in the High Court of Chancery by the proprietors of this patent* against S. White, J. Miller, James Gibb, John Gibb, and J. H. R. de Castro, all of Manchester, trading as the Hydro-Carbon Gas Company, for an injunction to restrain them from making and vending paraffine oil from Boghead and other bituminous mineral substances yielding paraffine. It is alleged that under the pretence of using these substances for the manufacture of hydro-carbon gas, they are in reality infringing upon Young's patent, which has proved to be a very valuable one.

NEWPORT, ISLE OF WIGHT.—We learn that the new form of retort used by M. Danré, jun., in the construction of the new gas works in this borough has been abandoned, it having been found impossible to keep the chambers through which the gas has to traverse free from carbonaceous deposit. Our readers will find a description of the apparatus in the JOURNAL for April, 1852.

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* See *ante*, page 91, vol. 2.

CORPORATION GAS ACCOUNTS.

REPORT OF THE MANCHESTER GAS COMMITTEE, SHOWING THEIR ASSETS AND ENGAGEMENTS.—JUNE 24, 1852.

PERMANENT ASSETS.

No. 1, or Water-street Station.

OLD WORKS.

Expenditure previous to the Gas Act of 1824:—			
Land	£ 3,800 0 0		
Buildings and apparatus	21,000 0 0		
		£24,800 0 0	
NEW WORKS.			
Land	1,500 0 4		
Buildings	86 0 0		
Apparatus	9,545 14 0		
		11,131 14 4	
Total at No. 1 Station			£35,931 14 4

No. 2, or St. George's-road Station.

(This station was established in the year 1824.)

Expenditure for objects completed, as per last report:—			
Land	2,368 14 8		
Buildings	13,066 3 10		
Apparatus	37,578 13 5½		
Paving Gould-street, Dewhurst-street, and yard	964 9 10		
Levelling ground, superintendent's salary, and petty expenses during the erection of the works	901 14 4		
Land, &c., received in exchange for scavengers' yard, St. George's-road	1,395 5 6		
		56,275 0 7½	
Advances on account of works not yet completed		2,375 15 7	
Total at No. 2 Station			58,650 16 2½

No. 4, or Holt-town Station.

(This station was established in 1832.)

Land		1,789 16 6	
Buildings		1,472 13 7	
Apparatus		10,992 13 7	
Paving Every-street		114 1 6	
Total at No. 4 Station			14,369 5 2

No. 5, or Hulme Station.

(This station was purchased in 1837.)

Land bought from Mr. Fernley	6,282 0 0		
Buildings and apparatus	6,120 0 0		
		12,402 0 0	
Works completed since purchased from Mr. Fernley:—			
Land	18,789 10 2		
Buildings	25,218 0 5		
Apparatus	26,845 12 4		
Paving Finch-street and yard	314 3 10		
		71,197 12 9	
Works completed since last report		5,125 10 6	
Advances on account of works not yet completed		15,608 14 9	
		104,333 18 0	
Deduct surplus procerds from sale of No. 3 Station		2,014 11 9	
Total at No. 5 Station			102,319 6 3

Street Mains.

OLD WORKS.

Expenditure previous to the Gas Act of 1824:—			
Mains	7,800 0 0		
Service pipes	1,400 0 0		
		9,200 0 0	
Streets laid subsequent to the Gas Act of 1824— 128 miles 1733 yards		89,409 0 9½	
Expenditure since last report:—			
Mains, 9 miles 951 yards	2,527 6 6		
Service pipes	727 5 8		
Labourers' wages	1,026 17 0		
	4,281 9 2		
Deduct amount of main pipes taken up in sundry streets	112 0 5		
		4,169 8 9	
Total in the streets			102,778 9 6½
Total permanent assets			314,049 11 6

FLOATING ASSETS.

Materials on hand	11,747 12 9	
Gas rents outstanding	15,063 3 11	
Sundry accounts owing	1,051 0 5	
Sureties of W. H. Coleman	128 9 1	
Advances on account of new works	330 9 0	
Balance in the bankers' hands (extension account)	17,664 9 10	
Balance in the treasurer's hands	676 0 5	
		46,661 5 5
		£360,710 16 11

ENGAGEMENTS.

MORTGAGE DEBT.

Amount borrowed under act of 1830	£ 8,500 0 0	
Amount borrowed under act of 1831	700 0 0	
Amount borrowed under act of 1837	109,550 0 0	
		£118,750 0 0

SIMPLE CONTRACT DEBTS.

To sundry persons for cannel	3,037 18 11	
Ditto main and service pipes	600 2 3	
Ditto meters and boxes	233 16 0	
Ditto fire bricks	127 6 6	
Ditto paving, &c.	107 17 9	
Ditto lime, bricks, and sand	107 4 9	
Ditto iron and ironwork	95 18 6	
Ditto rents, &c.	80 12 6	
Ditto poundage	78 17 9	
Ditto joiners' work	71 9 0	
Ditto carting	66 17 6	
Ditto stone and brick work	62 10 0	
Ditto stationery	31 18 0	
Ditto sundry articles	144 11 7	
To balance owing to the bank	2,663 0 11	
To check not paid by bankers	152 10 0	
		7,661 11 11
Total engagements		126,411 11 11
Excess of assets		234,299 5 0
		£360,710 16 11

RECEIPTS AND DISBURSEMENTS OF THE GAS COMMITTEE FOR THE YEAR ENDING JUNE 24, 1853.

Dr. RECEIPTS.		*Cr.* EXPENDITURE.	
To cash balance in treasurer's hands, June 24, 1851	£ 561 7 3	By surplus from rental	£36,089 5 3
„ balance in bankers' hands, June 24, 1851	1,671 3 1	„ liquidation of improvement debt	4,697 17 0
„ balance owing to the bank, June 24, 1852	2,663 0 11	„ loans repaid	6,750 0 0
„ check not paid by bankers	152 10 0	„ interest on loans	7,261 3 10
„ interest allowed by bankers on extension of works account	56 17 3	„ income tax	1,349 19 11
„ gas rents, street lamps, &c., received	99,684 13 6	„ extension of works	8,082 4 2
„ new loans on mortgage	27,900 0 0	„ cannel	26,102 14 3
„ coke, naphtha, ammonia water, &c., sold	5,630 19 3	„ retortmen's wages	7,479 2 2
„ meters, boxes, &c., sold	3,051 1 4	„ wages of manager, superintendents, clerks, &c.	3,141 14 11
„ fixing and repairing lamps, laying pipes, &c.	884 5 2	„ collectors' poundage	1,192 9 1
„ old metal sold	183 14 3	„ wear and tear of stations and streets	5,334 13 2
„ fines levied	3 10 0	„ foundry materials	4,992 0 0
		„ retort materials	1,771 13 2
		„ purifying expenses	1,389 11 10
		„ coke expenses	383 11 4
		„ naphtha expenses	162 17 1
		„ ammonia expenses	127 5 3
		„ repairing workmen's tools	122 19 5
		„ wages expended in lamps	318 16 5
		„ main and service pipes	1,103 17 3
		„ meters and boxes	2,959 15 9
		„ taxes, chief rents, and casual expenses	1,492 12 5
		„ stationery, advertising, and printing	218 8 9
		„ banking charges	104 4 5
		„ balance owing to the bank on extension account, June 24, 1851	1,474 6 7
		„ balance in the bank on extension account	17,664 9 10
		„ check paid by bankers after June 24, 1851	19 8 4
		„ balance in the treasurer's hands	676 0 5
	£142,443 2 0		£142,443 2 0

BALANCE SHEET OF THE DUBLIN ALLIANCE AND CONSUMERS' GAS COMPANY, FOR THE HALF-YEAR ENDING DEC. 31, 1852.

CAPITAL ACCOUNT.

Dr.—To				*Cr.*—By			
purchase of gas works, street mains, services, meters, &c., and cost of new mains, services, extensions, houses, offices, furniture, &c. ..		£107,799	17 4	proprietors' stock		£113,395	10 0
Stock on hands—				„ surplus fund	£9,514 19 8		
Coal, 5480 tons 12 cwt.	£3,890 18 10			„ reserved fund	547 6 4		
Coke, breeze, and tar	661 17 1			„ wear and tear fund	357 3 5		
Stores	1,314 0 9					10,419	9 5
Manufactured goods	23 16 8			„ Hibernian Bank	2,850 19 6		
		5,890	13 4	„ bills payable outstanding	401 11 11		
Cash lodged in banker's hands..	896 4 0			„ Debts, passive, due to sundry persons	3,297 8 6		
Petty cash.....	1 18 11			„ Unclaimed dividends, outstanding	452 10 0		
Bills receivable	57 12 9					7,002	9 11
		955	15 8				
Debts due for gas and meter rent	14,185 19 9						
Do., „ coke, breeze, and tar	689 10 1						
Debts, active, sundry persons ..	1,295 13 2						
		16,171	3 0				
		£130,817	9 4			£130,817	9 4

E. E., Dublin, March 10, 1853.

J. CRAWLEY, Accountant. TIMOTHY O'BRIEN, Chairman.

We have examined the above account, compared it with the entries in the company's ledger, and find it correct.

Dublin, March 15, 1853. (Signed) JOHN STOKES, FERGUS FARRELL, Auditors.

THE WORKING OF THE STATION, HALF-YEAR ENDING DEC. 18, 1852.

To value of coke, breeze, and tar on hands, July 1....	£	61	11 3	Total revenue derived from gas and meter rent		£12,064	14 6
Coal carbonised, &c. (5076 tons)		3,669	10 6	„ sales of coke, breeze, tar, &c.		2,180	8 6
Wages		1,060	12 11	„ transfer fees, &c.		18	6 8
Salaries		915	0 0				
Charges		498	1 2				
Rent and taxes.....		233	18 8				
Lime used in purifiers		50	0 6				
Swansea coal used at engine, 28 tons 11 cwt.		15	14 2				
Wear and tear, 12 per cent. off half-year's gas rent, to preserve and maintain company's works, machinery, &c.		1,388	2 0				
Reserved fund, for 6 per cent. off half-year's gas rent, set apart to cover bad debts and allowances.....		694	1 0				
Meter redemption fund, for 4 per cent. off cost of meters to this date.....		505	8 9				
Net gain.....		5,171	8 9				
		£14,263	9 8			14,263	9 8
				By balance profit.....		£5,171	8 9

(Signed) J. CRAWLEY, Accountant. TIMOTHY O'BRIEN, Chairman.

We have examined the above account, compared it with the entries in the company's ledger, and found it correct.

E. E., Dublin, March 10, 1853. (Signed) JOHN STOKES, FERGUS FARRELL, Auditors.

STATEMENT OF RECEIPTS AND EXPENDITURE OF THE ODIHAM GAS AND COKE COMPANY, FROM JAN. 1 TO DEC. 31, 1852.

RECEIPTS.

Balance at bankers as by last account	£174	9	6
Ditto in hands of Secretary	2	18	4
Cash received for gas (arrears)	3	15	0
Do. coke	2	4	0
Do. gas	255	8	6
Do. rent of meters	13	18	0
Do. coke, breeze, ashes, foul lime, gas tar, &c.	15	6	11
Transfer of share..	1	6	
	£468	1	9

EXPENDITURE.

Dividends	£80	0	0		
Unclaimed	2	0	0		
				£78	0 0
Wages				58	10 0
Coals, including carriage				79	2 9
Agent's bill (Dry)				2	4 8
Incidentals				9	19 4
Lime				4	8 0
Tradesmen's bills				18	18 3
Secretary's salary				15	0 0
Balance in hands of secretary				2	3 0
Ditto at Bankers—Rest	£60	0	0		
Proposed dividend	80	0	0		
Balance	59	15	9		
				199	15 9
				£468	1 9

ASSETS.

Eighteen tons of coal, at 19s. 6d.	£17 11 0
Four chaldrons of coke	4 0 0
Uncollected—Meters and gas	3 19 0
Do. foul lime	1 11 3

LIABILITIES.

Unclaimed dividends	£4 2 0

Seventeen public lights, at £3. 10. Private consumers, at 9s. 2d. per 1000 feet.

REPORT OF THE SALFORD GAS COMMITTEE FOR THE YEAR ENDING JUNE 30, 1852.

TO THE COUNCIL OF THE BOROUGH OF SALFORD.

Gentlemen,—Your committee, in closing their year of office, have to report as follows:—

Your committee's attention was drawn by their predecessors, in their annual report, to the defective condition of the No. 1, or old gasholder, which required replacing with a new one, and to the necessity of the retort-house roof being renewed; and also to the want of a new set of purifiers in lieu of the old circular ones, which had become inefficient for the proper purification of the gas during the winter months.

Your committee, having duly considered the above recommendations of their predecessors, obtained tenders for the whole of the above works, which are now completed. The new gasholder is 89 feet diameter and 24 feet deep, and cost (after deducting the old material sold) £654. 0s. 9d.; the new retort-house roof has cost £495; and the new set of purifiers, consisting of four boxes, 12 feet square and 4 feet deep, with centre trap, valve, and connections, have cost (deducting old materials sold) £475. 18s. 6d.

Your committee have, during the year, extended the retort-house 12 yards in length, in which space they have prepared for the building of six additional ovens, containing 36 retorts, which are much wanted from the increased demand for gas, and the fact that, during the last winter, your committee were left with only one oven of six retorts to spare, to meet any emergency that might have arisen.

Your committee feel much pleasure in being able to report a continued increase in the demand for gas; the amount of cannel carbonised during the year ending June 30, 1852, was 7625 tons 18 cwt., and the produce of gas during the same period was 87,552,600 cubic feet, and the average quantity of gas produced from each ton of cannel was 11,480 cubic feet. For the year ending June 30, 1851, the cannel carbonised was 6873 tons 10 cwt., and the gas produced was 79,996,500 cubic feet, showing an increase in the production of gas during the past year of 7,526,100 cubic feet.

The rental for the year ending June 30, 1852, was £17,041. 13s. 8d., that for the year ending June 30, 1851, was £15,884. 2s. 6d., showing an increase in the rental for the past year of £1157. 11s. 2d.

Your committee have, during the past year, paid over to the improvement committee the sum of £3244, being a moiety of the profits of the preceding year, and a similar amount, being the remaining moiety of profits, to the finance committee, to be applied in the forming a sinking fund of for paying off the mortgages of the corporation, in conformity with the Water Works and Improvement Act, 1850. They have also paid to the finance committee the sum of £2085. 0s. 5d., being five per cent. on the invested capital of the works; and the balance in the hands of the bankers on the 30th of June last was £3088. 18s. 5d. The gross profits for the year ending June 30, 1852, after deducting £1042. 10s. for wear and tear, has been £8102. 19s. 1d.; and, after paying the above amount of £2085. 0s. 5d. to the finance committee for interest, the net profits were £6017. 18s. 8d., being £471. 17s. 8½d. less than the preceding year, which is accounted

for in consequence of the retort-house roof and the No. 1 gasholder having been renewed during the year, at a cost of £1149. 0s. 9d., which, being for renewal of works and not investments, renders the profit this year that amount less than, under ordinary circumstances, would have been the case.

Your committee have, during the past year, used none but clay retorts, which have been very successful, and much superior to the iron ones. The average durability of the clay retorts has been about ten months, whilst that of iron has not been more than four months: a very great saving has, consequently, been effected, not only in the first cost, but in the amount paid for fire bricks and fire clay used in setting, and also in bricksetters' wages: as one setting of clay retorts lasts ten months, whilst iron retorts require setting every four months, the entire labour of one bricksetter has thus been saved. The following statement of the cost of these items for the seven years last past shows the beneficial effect of this change of working:—

COST OF IRON AND CLAY RETORTS, FIRE BRICKS AND CLAY, BRICKSETTERS' WAGES, &c., FOR SEVEN YEARS.

Years.	Iron Retorts.	Clay Retorts.	Fire Bricks and Clay.	Bricksetters' Wages.	Total.	Cubic feet of Gas produced.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1846	661 9 10	None used	294 5 6	181 7 9	1137 3 1	54,462,500
1847	511 4 9	Ditto	228 17 -	178 8 7	918 10 7	58,236,000
1848	813 18 4½	Ditto	185 19 5	138 0 0	1137 17 9	58,102,825
1849	470 16 5	Ditto	260 17 4	173 1 9	904 15 6	60,487,100
1850	481 5 10	57 4 9	193 6 8	140 11 4	872 8 7	70,751,600
1851	116 0 0	256 16 11	141 0 4	109 8 7	513 17 3	79,996,500
1852	None used	240 5 8	114 18 1	71 14 7	426 18 4	87,522,600

Taking the year ending the 30th of June, 1848, when the price of iron was high, the cost of retorts, fire bricks, &c., and labour, was £1137. 17s. 9d., and the production of gas 58,102,825 cubic feet, with iron retorts at the above price, it would have cost to produce the 87,522,600 cubic feet of gas for the year ending June 30, 1852, the sum of £1714; and taking the year ending June 30, 1849, when the price of iron was much lower, the cost for the above items was £904. 15s. 6d., and the production of gas 60,487,100 cubic feet: therefore, with iron retorts at the low price of iron, it would have cost in the year ending June 30, 1852, £1309. 5s. to produce the quantity of gas made last year; and, taking the average of the high and low prices of iron retorts in 1848 and 1849, it would have cost £1511. 12s. 6d.: whereas, by the adoption of the clay retorts, the above items amount to only £426. 18s. 4d. for the past year, thereby showing a saving of £1084. 14s. 2d., as compared with the average of high and low prices of iron retorts in the years above named.

Your committee have, during the past year, had applications to continue the main pipes to Prestwich and Patricroft; also to several places in the outskirts of Salford, Pendleton, Pendlebury, and Broughton; and, from the rapidly increasing demand for gas in private houses, as well as in the mills, workshops, and other business establishments, it will be necessary to make a considerable extension of the gas works, to meet the necessities of the several townships.

In the course of the past year, the requisite service pipes have been laid to 32 additional street lamps in Salford, and service pipes for 159 other street lamps have been renewed, cleansed, or altered, by and at the expense of your committee.

* * * * * *

The following statement, in continuation of the one prepared up to 1849, will show the receipts and expenses of your committee under general heads, and the net profits made for the last four years:—

RECEIPTS.	For the Year ending June 30, 1849.	For the Year ending June 30, 1850.	For the Year ending June 30, 1851.	For the Year ending June 30, 1852.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Gas rents	13,849 7 11	14,341 2 7½	15,604 6 5	17,081 17 3
Coke, gas tar, ammoniacal liquor, &c....	952 7 2	1,186 9 6½	1,227 0 11	1,475 9 0
Meters and meter boxes	541 3 9	500 3 3	607 16 11	789 13 3
Sundries	40 6 4	51 17 0	62 14 3	243 5 1
Total .....£	15,343 5 2	16,082 12 5	17,501 18 6	19,590 4 7
EXPENDITURE.				
Salaries and wages....	1,925 15 11	2,103 17 10	2,206 7 11	2,596 18 8
Interest, property tax, and chief rents	286 8 3	387 19 3	345 0 10	230 1 4
Cannel, lime, meters, retorts, &c..	5,613 8 3	5,569 14 5	5,855 8 0	7,520 9 3
Finance committee, interest on invested capital	1,848 16 7	1,828 12 1	1,857 6 2	2,085 0 5
Moiety of profits, improvement committee	1,939 0 0	2,490 0 0	2,753 0 0	3,244 0 0
Ditto, sinking fund account..	....	....	....	3,241 0 0
Investments, new works	719 18 9	1,293 7 11	5,482 17 5	1,696 15 8
Totals .....£	12,333 7 8	13,574 11 6	18,500 0 4	20,617 5 4
Quantity gas produced	60,487,100	70,751,600	79,996,500	87,522,600
Net profits.....£	4,980 19 9	5,507 15 0	6,489 16 4½	6,017 18 8

Your committee, in the early part of December last, had under their consideration the subject of largely extending the gas works, and the manager subsequently addressed a letter to the Chairman on the subject, which your committee have considered it desirable to record. (A copy of which is annexed.)

* * * * * *

Your committee agreed unanimously, on the 25th of August last, subject to the approval of the council, to advance the salary of Mr. Stelfox, manager, from £250 to £300 a year, with house, coals, taxes, &c., free, as before; immediately after which, a situation as manager of the Belfast Gas Light Company, at a higher salary, presented itself, which he has accepted, and they have, consequently, to regret the loss of an active and intelligent servant, and one in whom they have always placed the utmost confidence.

* * * * * *

Your committee, in conclusion, have to congratulate the council on the excellent working condition of the works, the steadily increasing demand for gas, and the success which continues to attend the progressive development of the resources of the establishment.

THOMAS CHADWICK, Chairman.

Gas Works, Salford, Oct. 30, 1852.

MR. STELFOX'S LETTER TO THE CHAIRMAN.

Gas Works, Salford, Dec. 28, 1851.

Sir,—In conformity with your request, I beg to hand you my views with reference to the extension of the main pipes to the extremities of the out townships.

For several years past, my attention has been directed to the capability of the gas works to supply the quantity of gas likely to be required by the rapidly increasing population of the municipal borough of Salford, and the adjoining townships of Pendleton, Pendlebury, and Broughton.

At the present time there is a strong desire manifested by the inhabitants of the above townships to have gas introduced into their houses, as well as their places of business; and repeated applications are being made to the lighting inspectors, to furnish the streets and lanes with gas lamps; which is likely to result in main pipes being laid to the boundaries of the several townships, which will necessarily create a much larger demand for gas.

The superiority of coal gas to every other material for producing light has been long established, and it possesses many advantages over the oil and naphtha lamp, or candles, either for manufacturing purposes or domestic use; its great illuminating power, the saving of time in preparing lamps, and its safety, are indisputable, whilst, at the same time, it is much more economical than any other light-giving article.

In referring to the establishment of these works, I find the following clause in the report of the gas committee for the year 1834:—"The works, when finished to the extent at present contemplated, will produce 200,000 cubic feet of gas per diem, being more than double the produce of the old establishment; and, as reasonable expectations may be entertained that this rapidly improving town will, within a few years, require a still more copious supply, they have so arranged the erections that at any time, by the addition of another gasometer (for which a place is left) and the extension of the retort-house across the yard, the produce of the establishment may again be doubled at a moderate additional expense." In the committee's report for the year 1835 is the following clause:—"After the presentation of last year's report, it was deemed advisable, from the rapid increase of the consumption of gas in the town, to enlarge the plan of the new establishment, to produce 300,000 feet per diem, instead of 200,000 as there stated."

In the report of 1836 it is stated:—"By the present establishment, 72 retorts can be worked; but your committee believe that they should be enabled to furnish an ample supply to public lamps and private consumers, by working about 30 retorts."

The annexed statement will show the increase in the production of gas during the last ten years, viz.:—

Gas produced to June 30.....	1842	40,429,100	cubic feet.
Ditto ditto	1843	39,781,000	,,
Ditto ditto	1844	40,666,200	,,
Ditto ditto	1845	46,797,000	,,
Ditto ditto	1846	54,462,500	,,
Ditto ditto	1847	58,236,000	,,
Ditto ditto	1848	58,102,825	,,
Ditto ditto	1849	60,487,100	,,
Ditto ditto	1850	70,751,600	,,
Ditto ditto	1851	79,996,500	,,

During the above period, the produce has been doubled; and, with reference to the capacity of the works, it is evident that it will be impossible to give a much greater supply than they are now furnishing. We have a bench of 22 ovens, containing space for 123 retorts; 14 ovens are now in operation, containing 78 retorts, and are producing upwards of 430,000 cubic feet of gas per diem, being more than double the amount the works were first laid out to produce; and above one-third more than they were calculated to produce by the enlargement of the plans in 1835.

The quantity of gas now produced is quite as much as the various apparatus—viz., the condensers, washer, purifiers, and station meter—are calculated to pass, in such a state of purity as is necessary for public and domestic purposes.

If the present retort-house was continued still further up the yard, so that an additional number of retorts could be set up and worked, such an arrangement would be met by the inefficiency in the condensing and purifying apparatus being too small for the porpose.

If an out station was determined upon, a considerable expense would be incurred; a plot of land would have to be purchased, and a boundary wall built round the same; a tank would have to be excavated, and a gasholder erected therein; a separate main pipe would be required from these works to it; and a cottage house built for a person to live in, who would have the charge of the gasholder, governor, valves, &c. If it was made a producing station, all the necessary buildings and apparatus would be required, viz.:—retort-house, chimney, hydraulic mains, condensers, washer, purifiers, station meter, governor, &c.

Instead of enlarging the present retort-house, and erecting new apparatus in connection therewith, or building an out station, I would, after careful and mature consideration of the subject, recommend the committee to take the whole of the land to Chapel-street, now occupied by Messrs. J. and C. Mouncey and others, and to erect another set of works thereon, as per plan which I have prepared. This arrangement, I consider, would make the establishment a very important and commodious one. Another telescope gasholder, of the same size as the one now in operation, might be put down in that part of the yard now occupied by the spent lime, cinders, &c.; and, by conveying the inlet and outlet pipes through the new dry well, the expense of a dry well would be saved in this instance. The man who now attends the present gasholders, valves, &c., would also have the care of the new one at very little more cost; and, by a small additional assistance at these works, the salaries and wages of several persons would

be entirely saved by the concentration of the entire establishment in Salford.

If such arrangements were made, I would recommend the following division of the Parliamentary Borough, viz.:—From the new works, containing the two telescope gasholders, a supply would be furnished to that part of Chapel-street from New Bailey-street to Greengate; all the mills and manufactories on the banks of the river, Springfield-lane, Broughton-road, the whole of the mills, &c., in the Adelphi, and the entire township of Broughton, bounded by Kersall Moor, Singleton Brook, Cheetham Hill, the Bury New-road, Tetlow-fold, to the boundary of Broughton, with Cheetham and Crumpsall. From the present works, containing the two single gasholders, a supply would be given to that part of Chapel-street above New Bailey-street; the mills, &c., on the banks of the river from Albert-bridge to Ordsall; Oldfield-road, Regent-road, to the boundary of Salford with Pendlebury; the mills, &c., at Weaste-lane, the Crescent, Cross-lane, the whole of Pendleton; the mills, &c., at Charlestown and Douglas-green; the Eccles Old-road to Gilda-brook, the Bolton-road to Irlams o' th' Height, &c.: thus embracing the whole of the Parliamentary Borough of Salford.

As regards the lighting of the villages of Eccles and Patricroft on the Pendleton side, and the villages of Prestwich and Rooden-lane on the Broughton side, I would not advise the committee to entertain them at all at present; as the expense in mains would be considerable, with not much probability of an adequate return; and, when the Pendleton and Broughton extensions are carried to the boundaries, we shall have some difficulty in giving the necessary pressure from the works, so as to afford to all a full supply.

The main pipes in Greengate and Broughton-road will require enlarging, to complete the intended plan for a supply to the Adelphi and Broughton; the pipes from Oldfield-road to Cross-lane will require to be continued of 12-inch bore instead of the present 8 inch; the Pendleton gas inspectors will have to lay larger mains from Cross-lane along Broad-street to the Toll-bar, Tanner's-lane, Bolton-road, and Charlestown, to complete the principal mains in that direction.

The roof of the retort-house, the new purifiers, and the renewal of the No. 1 gasholder, should occupy the attention of the committee as early as possible; and, if the arrangements could be now made, we should have the spring and summer before us for their completion.

I have now enumerated every thing that appears to me to be necessary for a complete and efficient gas establishment, and respectfully submit them for your consideration. I am, Sir, yours respectfully,

JAMES STELFOX, Manager.

Thomas Chadwick, Esq., Chairman of the Gas Committee, Salford.

RECEIPTS AND EXPENDITURE OF THE SALFORD GAS COMMITTEE FROM JUNE 30, 1851, TO JUNE 30, 1852.

RECEIPTS.

To balance of cash on hand, June 30, 1851		£ 33 3 4	
Balance in the banker's hands, June 30, 1851		4,301 13 6	
Balance of interest account, to June 30, 1852		190 5 5	
Gas rents received	£17,016 13 6		
Gas rents outstanding, June 30, 1851	2,245 2 1		
	19,261 15 7		
Less gas rents outstanding, June 30, 1852	2,179 18 4		
		17,081 17 3	
Coke, Gas Tar, Ammoniacal Liquor, &c., sold.			
Coke	711 7 2		
Gas tar	555 14 0		
Ammoniacal liquor	207 18 4		
Cinders	0 9 6		
		1,475 9 0	
Meters and Meter Boxes.			
Meters	747 10 0		
Meter boxes	42 3 3		
		789 13 3	
Sundries.			
Old iron (not retorts)	20 6 0		
Burners	0 11 3		
Old steam-engine, sold	19 2 6		
Old tar still, &c., sold	13 0 0		
		52 19 8	
Balance of sums owing to and by the committee, June 30, 1852:—			
Sums owing by the committee, as per balance sheet	2,352 8 8		
Sums owing to the committee, as per balance sheet	1815 2 11		
		536 5 9	
		£24,461 7 2	

EXPENDITURE.

Balance of sums owing to and by the committee, as per report of 1851				£ 669 14 6½
Salaries.				
Manager	James Stelfox, one year	£ 250 0 0		
Collector	Samuel Long, ditto	183 10 0		
Office clerk	John Storer, ditto	97 16 4		
Inspector of meters, &c.	Wm. M'Farlane, ditto	62 8 0		
Inspector of meters	John Cocker, ditto	50 6 0		
Assistant inspector	John Nixon, ditto	29 10 0		
Lodge-keeper	Chas. Britland, ditto	52 0 0		
				725 10 4
Workmen's Wages.				
Gas men		1,261 13 1		
Bricklayers at retorts		71 14 7		
Labourers at the works		400 15 11		
Labourers at service and lamp pipes		137 4 9		
				1,871 8 4
Interest, Chief Rents, &c.				
Property tax, one year		£169 12 10		
Less received from Le Gendre N. Starkie		£ 8 5 8		
Less received from the finance committee, two years		114 19 6		
		123 5 2		
			46 7 8	
The finance committee, one year's interest on the invested capital			2,085 0 5	
Chief rents, one year			284 1 8	
Less received from the Townhall, &c., committee			100 8 0	
			183 13 8	
The improvement committee, proportion of profits to June 30, 1851			3,244 0 0	
The finance committee (sinking fund account), proportion of profits to June 30, 1851			3,244 0 0	
				8,803 1 9
Cannel and Lime.				
Cannel		4,478 7 11		
Lime and purifying		116 2 1		
				4,594 10 0
Meters and Meter Boxes.				
Meters		646 3 0		
Meter boxes		43 18 6		
				690 1 6
Main Pipes, Excavating, &c.				
Iron main and service pipes				1,543 10 8
Iron Castings and Smiths' Work.				
Iron castings for works		48 1 0		
Implements		55 6 8		
				103 7 8
Clay Retorts, Fire Bricks, &c.				
Clay retorts		240 5 8		
Fire bricks and fire clay		114 18 1		
				355 3 9
Cement, Repairs of Pipes and Streets.				
Cement		50 16 4		
Repairs of the water works committee's pipes		3 10 1		
Repairs of streets		193 2 8		
				247 9 1
Miscellaneous Expenses.				
Oil, paint, and painting		31 11 10½		
Repairs of buildings		27 8 0		
Expenses on manager's house		18 16 0		
Casual expenses on the works		197 19 5		
Renewal of the retort-house roof		495 0 0		
Renewal of the gasholder in No. 1 Pit		654 0 9		
Water rent		40 0 0		
Office expenses		65 1 2½		
Part expenses in extending the retort-house		90 5 0		
Enlargement of the house at the works		63 0 0		
				1,683 2 3
Balance in the banker's hands, June 30, 1852				3,088 18 5
Balance of cash on hand, June 30, 1852				85 8 10½
				£24,461 7 2

SALFORD GAS COMMITTEE STOCK ACCOUNT, JUNE 30, 1852.

ENGAGEMENTS.

Sundry debts owing on simple contract	£ 2,352 8 8
Excess of assets	47,140 11 9½
	£49,493 0 5½

PERMANENT ASSETS.

Gas Works, as per last report		£41,700 8 9	
Deduct allowance for deterioration for the year		1,042 10 0	
			£40,657 18 9
Add outlay in the year ending June 30, 1852:—			
Part expense in the extension of the retort-house		90 5 0	
Enlargement of the house at the works		63 0 0	
Iron main pipes		1,543 10 8	
		1,696 15 8	
Deduct old steam-engine, sold	£19 2 6		
Deduct old tar still, &c., sold	13 0 0		
		32 2 6	
			1,664 13 2

FLOATING ASSETS.

Gas rents outstanding, June 30, 1852	2,179 18 4	
Sundry debts owing to the committee	665 11 11	
Sundry materials on hand	1,150 11 0	
Balance in the bank, June 30, 1852	3,088 18 5	
Balance of cash on hand, June 30, 1852	85 8 10½	
	7,170 8 6½	
	£49,493 0 5½	

ADVENT OF THE NEW GAS IN SHEFFIELD.

The Consumers' Gas Company have redeemed their promise to supply gas before the expiration of April, and if not on a sufficiently extended scale to make a strong impression on the public mind the inaugural process has at least created a sensation. The works at Neepsend being so far advanced as to admit of a certain quantity of gas being disseminated through the mains, the dispute between the new gas company and Mr. John Sykes relative to the passage of the gas along the highway in Nursery-street, through that portion of the soil which Mr. Sykes claims as part of his freehold, was now approaching rapidly to a crisis. On Monday morning, April 25, the inhabitants round about Nursery-street had their olfactory sense assaulted by a very palpable inspiration of gas. Not knowing from the scent whether the invisible plague was old gas or new, a number of them hurried off to the office in Shude-hill, and made a complaint to the officials of the old gas company, affirming that the stench was so intolerable that they could not breathe in their own houses. Some of the old company's men thereupon went into Nursery-street to ascertain the cause of the offensive effusion, and they discovered that the new gas company's gas was being poured into the mains at the works, and that it was pouring out just as rapidly at the hiatus in the artery, caused by Mr. Sykes having some weeks ago broken and removed one of the pipes that had been laid in the soil in front of an unoccupied dwelling-house which is his property. As a measure of precaution the inhabitants were all advised to extinguish their fires until the explosive element had ceased to trouble them. Numerous complaints were made that (Monday) morning to Mr. Raynor of the insufferable nuisance arising from the vast escape of gas. Mr. Raynor consequently sent for Mr. Alcock, the chairman of the new company, and Mr. Flintoff, the secretary, and urged upon them the necessity of taking immediate measures of relief, as the inhabitants of the locality were not only in a state of alarm, but exposed to actual danger. Mr. Alcock promised to go to the works at Neepsend and stop the stream of gas, which was accordingly done.

About noon on that day a band of workmen in the service of the new company went into Nursery-street, and pulled up the surface of the highway in front of the house belonging to Mr. Sykes. This operation laid bare the roof of a coal-cellar that Mr. Sykes recently caused to be excavated and constructed, and which enabled him to destroy the gas-main as before mentioned. The workmen in the next place entered the cellar by taking off the roof, and having descended into the apartment they deliberately pulled down all the brick work —the side walls and likewise the roof. The rubbish was thrown out of the way into the inner cellar. A new pipe was then put in the place of the broken one, and thus the tubular connection between the new gas works and certain parts of the town was re-established. These operations occupied the whole of Monday afternoon and night. The opening in the pavement to the floor of the dismantled cellar was kept open until Wednesday at noon. A man was left in charge in the daytime, and a band of four men, armed with sticks, mounted guard during the night. Some bricklayers arrived on Wednesday noon, and commenced the work of partial restoration. The cellar, it should be understood, extended about as far as the outer edge of the causeway, and the gas mains intersected it at or very near the centre. The bricklayers built a wall parallel to the pipes and just within them, thereby contracting the expanse of the cellar more than half, and forming a strong barrier between the underground apartments of Mr. Sykes's house and the line of metallic pipes. The new brick wall, however, was not deemed a sufficient barricade to prevent a fresh assault from Mr Sykes upon the mains. As a measure of additional security, therefore, a treble row of parallel mains was laid along the line of the new outer wall of the cellar, in such a position that they must perforce be broken through before the newly-restored channel of the gas could be reached from the cellar. On Wednesday night, the work having been completed, the surface of the street was restored. During all that time, Mr. Sykes did not deem it prudent to interfere. We understand that the workmen while in the cellar found a hammer, and that one of them, remarking that it was the property of the old gas company, ventured to carry it away with him, fancying that it might be important as furnishing evidence to connect the owners of the hammer with the pipe-breaking which Mr. Sykes has avowed as his own act. There is an intention, we hear, to prosecute the man for stealing the hammer.

The new company's gas having now made its way into the town, a few shops were illuminated with it on Wednesday evening. Perhaps the word illuminated is too strong a term to apply under the circumstances, but there was an obvious apology for the dimness of the light, in the fact that the mains and pipes could scarcely have been cleared of atmospheric air.

Some other striking incidents connected with the first influx of gas into the mains and pipes remain to be narrated. It seems that early in the day on Monday some of the new company's men, either with the view of ascertaining whether the subtle element had become diffused, or else to test its quality, applied a light at one of the syphons in the Wicker. The contents of the pipes caught the flame; but the blaze, instead of issuing outwards in the usual course, recoiled inwards and sped along the mains and pipes like a blast in a coal mine. The cause of this might be the absence of sufficient pressure at the source. Happily the explosive element found a means of escape by blowing out certain wooden plugs, or the pipes must necessarily have burst, and consequences most disastrous would in all probability have supervened. The plugs were inserted at the *termini* of the mains, and also in lateral orifices opposite to the ends of streets, &c., from which it was anticipated that branch lines of pipes would afterwards have to be made. The forcing out of a number of these stoppers was attended with striking superficial results. In High-street, at the end of George-street, the paving-stones were elevated from their bed. At the junction of Bow-street and Holly-street the causeway flags were lifted up into the form of a Grecian arch. At one end of Market-street a plug ten inches in diameter was driven out, and the force of the explosion displaced the flags and stones. Similar effects were produced at the West-street end of Carver-lane, at the corner of West-street and Rockingham-street next to Mr. Downing's shop, at the end of Bath-buildings, and at the junction of Division-street and Holly-street. Slighter shocks were felt in Union-street, at the end of Mulberry-street, and likewise in many other places. Perhaps none suffered more alarm and inconvenience from the escape of unpurified gas than the inmates of two adjoining houses and shops in High-street—those of Mr. Owen, the saddler, and Mr. Travell, the tailor. The premises were filled with the noxious current from the occurrence of the explosion till noon on the following day. It is supposed to have issued from the outlet at the end of Mulberry-street, and insinuated itself along the sewers and drains. So formidable was the infliction that it was found necessary to extinguish the fires and keep the doors and windows open. Mr. Owen's maid-servant became ill on Tuesday morning in consequence, and was attended by Mr. Reedall, surgeon. Mr. Owen made complaint to the magistrates and chief constable at the town-hall. The civil authorities declined to interfere. The applicant was told that he had a clear ground of action, and it was suggested that he should apply to his solicitor. Urgent application for relief was made first to one and then to another of the company's officials and directors on Monday, and again on Tuesday. Early in the afternoon of the latter day some workmen went and found out the cause of the annoyance, and it was forthwith put an end to.

The restoration of the broken pipe in Nursery-street has given rise to the following pungent correspondence. On Thursday, Mr. Alcock, the chairman of the new gas company, wrote thus to Mr. Sykes:—

"*Gas Consumers' Company's Offices, April* 28, 1853.

"Sir,—I beg to inform you that the 18-inch gas-pipe belonging to this company, said to have been broken under your directions in Nursery-street, opposite the Great Northern Company's offices, has been replaced in proper condition to satisfy the fears and appease the feelings of the inhabitants of this locality.

"And further to inform you, that all consequences may rest now upon you, that the pipe is full of gas; and I need not tell you of the danger, saying nothing of the alarm of the inhabitants, should any further damage be attempted.

"Although report speaks of your further intentions, I do not for a moment believe that a man in your position of life, or, indeed, any man of sane mind not wishing to be thought insane by the inhabitants, when the question of legality is about being properly settled by the lawful tribunals of the country, would attempt anything so really barbarous and wicked; yet that the whole responsibility may without any chance of a mistake rest fully on you, I thought a respectful notice could do no harm.

"I am, Sir, yours very obediently,

"To John Sykes, Esq." "Charles Alcock, Chairman.

The following is Mr. Sykes's reply:—

"*Sheffield, April* 29, 1853.

"Sir,—I am in receipt of a letter written by you as chairman of the Sheffield Gas Consumers' Company, dated yesterday. A more impudent production was never penned, even by the projectors and promoters of your company. You and your colleagues, with a full knowledge that a portion of the pipe you had most unwarrantably and illegally laid in my property in the Nursery had been removed, recklessly forced into your mains and into my house unpurified gas, to the great alarm and danger of the inhabitants of the locality, and that too at a time when your works were not in a position to supply gas for any useful purpose.

"You have the assurance to talk to me about 'the question of legality being about to be properly settled by the lawful tribunals of the country,' when you well know that it has been already settled by one of the most eminent common law judges of the day, who deliberately and distinctly declared that your acts were illegal.

"The removal of the pipe in my property was strictly in accordance with the expressed opinion of the Lord Chancellor and of the present Solicitor-General, your own counsel; and the right of the owners of the adjoining property to the soil of the streets has been strongly asserted by your present counsel, Sir F. Kelly and Mr. Bliss. You and your advisers know perfectly well that you have throughout acted in flagrant violation of the law, relying upon accomplishing your object before it could be brought to bear upon you; and yet in the face of all this you have the hardihood to write me such a letter as that of yesterday.

"When it suits your purpose, your counsel set up the right of the adjoining owners to the soil of the highways; but how have you dealt with that right? You have invaded and wholly disregarded it, and even in many instances after a written protest. In fact, your motto has been 'might' against 'right,' and 'mob law' against 'reason and justice'; but I trust that at no distant day you will be taught that open defiance of the law will always meet its merited punishment.

"I hereby give you notice, that if any means can be adopted by which the pipes you have most unjustifiably laid in my property can be removed without danger to the inhabitants, they shall be so removed; and that I shall have recourse to such legal measures as I may be advised, to obtain redress for the trespass. "I am, Sir, &c. &c. "John Sykes.

"Mr. Charles Alcock, chairman, Sheffield Gas Consumers' Company."

Sheffield Times.

We learn that the supply of the new gas has been so irregular, and the quality so bad, that the further supply has been suspended.

Coal or Asphaltum.—In our last number we noticed a case lately decided in the courts of Nova Scotia, in which it was found that a certain mineral worked in New Brunswick was not coal. Since then, we have received a copy of the principal evidence adduced in the case, and have been informed that the same mineral has subsequently been decided to be coal by a New Brunswick jury. These two conflicting decisions are said both to be appealed against. We also mentioned that a similar question was depending before the Scotch courts with regard to the Boghead cannel. But on perusing the evidence in the transatlantic cases, it is curious enough to find that the whole of it, adduced to prove that the New Brunswick mineral was *not* coal, goes to show that the Boghead mineral is a true coal. Among other points may be mentioned the non-electric character and insolubility of the Boghead mineral—its lying in a regular bed in the coal measures, and containing numerous impressions of coal plants, in all of which it differs entirely from the New Brunswick mineral.

MINUTES OF EVIDENCE ON THE LIGHTING OF THE HOUSE OF COMMONS.

(*Continued from p.* 47.)

2197. What is the diameter of the orifice from which the gas issues?—It is a compound orifice. There are two gas passages which unite into one, producing a flat sheet of flame; there are two currents of gas which unite in one opening; these two currents rushing together produce a flat flame in an opposite direction to that in which those two passages are made.

2198. Will you explain to the committee how the flame is horizontal?—Simply by placing the burner or the tube from which the flame issues horizontally. Supposing that my finger upright represents the burner which I have endeavoured to describe, the flame would be vertical, inasmuch as the orifice from which it issues looks vertically; but if I place it horizontally the flame would issue horizontally, except in so far as it is affected by an ascending current of air passing it.

2199. Sir D. Norreys.] That forms a curve?—Yes; if it is a mere naked light, the burner placed horizontally will produce a curved flame.

2200. Mr. Stephenson.] The curve is inappreciable, I suppose?—No, I think not.

2201. Chairman.] Will you inform the committee whether it is a flat or a circular flame?—It is a flat flame.

2202. What becomes of the products of combustion?—In these clustered burners, the sun-burners, there is an arrangement made for carrying the products of combustion out of the building.

2203. In the ceiling?—Yes.

2204. What is the arrangement?—A series of tubes; there is a cone in which this cluster of burners is placed, a sheet-iron cone.

2205. Are you now speaking of the chandelier?—There is no chandelier, properly speaking.

2206. Mr. Locke.] Where is that cone fixed?—On the plane of the ceiling, or a little below it.

2207. On the highest part of the ceiling?—Yes; supposing this room were to be lighted by a sun-burner, the centre panel would be taken out, and that would be the position of the burner.

2208. Chairman.] It being in the horizontal part of the coved ceiling?—Yes, supposing the ceiling were coved.

2209. You have stated that the ceiling is coved?—Where there is a coved ceiling this clustered burner is not used, excepting over the orchestra; that is the sole light for the orchestra, so that when they are practising, and there is no audience, the sun-burner over the orchestra is the only light used in the room.

2210. My question to you was this: what becomes of the products of combustion by this gas light which is round the whole of the cornice?—They escape through the cove; the cove is filled with latticed work, behind which there are passages, and the products of combustion simply escape through the latticed work of the cove.

2211. Is that the horizontal portion of the ceiling?—No, the inclined portion.

2212. Mr. Locke.] At the back of the cornice?—Above the cornice.

2213. Mr. Stephenson.] At the commencement of the cove?—At the commencement of the cove.

2214. Chairman.] Is that a room which carries exactly the same shape from one end to the other, or is there any abscise or different shape where the orchestra is placed?—The orchestra is retired beyond the line of the square of the room.

2215. Is the room higher or lower immediately above the orchestra, or the same height?—The same height.

2216. Is it the same shape?—The room is a peculiar one; there are recesses in all parts of the room.

2217. Mr. Locke.] Independently of those recesses, are there galleries or private boxes in the room?—There are.

2218. All round the room?—Yes.

2219. And corridors at the back of those boxes?—There are.

2220. Chairman.] They are recessed, I presume?—They are recessed.

2221. Mr. Locke]. Probably scarcely any of the persons in the orchestra would be higher than the persons in the galleries?—No; not so high, I think; I regret that I am not prepared with some drawings; I am an accidental witness, if I may so say, and was requested to answer a few questions; I am not at all prepared with drawings, or any other information than my own recollection; the pleasing effect is, I think, produced by breaking up the light; it is so completely broken up into small portions, that, although the aggregate effect is very striking and very powerful, yet, when the eye is directed to any one portion of it, it is not at all offensive to the eye; indeed, the effect, I think, which would be produced on most minds would be this: whence does this light come; is it possible that these small jets are producing this body of light?

2222. Chairman.] Do you state, then, that there is very little glare in this light?—Very little glare.

2223. Mr. Locke.] The appearance of it is one continuous light along the whole cornice completely encircling the room?—Yes; allow me to qualify my answer as to its being continuous; it is rather in clusters of three.

2224. But the spaces between the lights are not great?—There are three in a linear foot; there is first the horizontal pipe on the cornice, there are next the branch pipes at right angles to it vertically, and then three lights.

2225. Chairman.] What is the length of the branch pipe?—I should think six or eight inches.

2226. Is it pretty nearly vertical?—Vertical; all the cornice lights are vertical, or a little inclined forward.

2227. Then the branches are vertical to the pipe?—Yes; or a little inclined forward.

2228. Sir D. Norreys.] Is the flame a conical flame, or a flat flame?—A flat flame.

2229. All round the cornice?—Yes.

2230. Does it issue vertically?—In the cornice; the ceiling above the cornice is curved.

2231. Chairman.] The committee are not quite clear whether there is a difference between the flame of that light over the orchestra and the flame of the cornice lights?—It only varies in its position; the burner used is precisely the same in each case; the little jet from which the gas issues is precisely the same in each, excepting that in the cornice light it is vertical, or a little inclined forward to the room, and in the other it is perfectly horizontal.

2232. And it comes out of a tube, so to speak, pointed horizontally?—Just so.

2233. Mr. Locke.] What is the diameter of the large light which you have?—I do not know that I can give you that; I perhaps may answer your question in another way; I can give you the dimensions of one which contains a cluster of seven instead of a cluster of nineteen; or perhaps this will be a sufficient answer to the question: from centre to centre of the cluster is six inches.

2234. So that the diameter of the entire chandelier, or glass, would be what?—Eighteen inches or two feet.

2235. About eighteen inches or two feet diameter?—Yes; in the burner, such as is used for lighting places of worship, where there are 63 burners, or seven clusters of nine, the mouth of the cone which contains those burners is one foot nine.

2236. Sir D. Norreys.] In respect of the clustered light which is over the orchestra, in a circle of what diameter do you suppose that the lights are set?—I should think it does not exceed two feet six.

2237. Then would two feet six contain 150 burners?—I think they would.

2238. In a single line?—In a single arrangement; the appearance, when seen from below, is that of a beautiful flower, each flame is like the petal of a flower, and the effect is extremely beautiful when lighted.

2239. Chairman.] Is there only one single ring of light over the orchestra, or are there more rings than one?—There are nineteen clusters.

2240. Upon one ring?—They are not arranged in a ring.

2241. Mr. Bankes.] Do these jets or burners which you are speaking of resemble those now used in Westminster-hall?—Yes, it is the same character of burner.

2242. Only varied in the arrangement?—Just so; nothing more.

2243. Those in Westminster-hall are about the same size as the jets of which you speak?—Just the same; there are two or three varieties of that burner, varying as to size.

2244. Mr. Locke.] Is there any thing new in the application of the horizontal light?—It has been used in Liverpool some four or five years; I do not know that it was ever used any where else, not in the same extent; not to the same amount of clustering, if I may so say.

2245. Then the rose-light you consider to be a combination of the principle of horizontal burners?—There is a light called the rose-light, in which there is a collection of vertical flames.

2246. I refer to the horizontal flame which you said had the appearance of a flower?—That is called the sun-burner.

2247. Is that sun-burner simply a combination of horizontal burners?—Just so; nothing more.

2248. Do you know where it was first applied?—I believe that the lecture-room of the Collegiate Institution in Liverpool was the first place.

2249. In what year was it applied?—I believe about five years ago; I can get to know it certainly if the information is important, but from recollection I should say about five years ago.

2250. Sir D. Norreys.] These lights are all exposed, are they not, to the eye?—They are.

2251. Will you state what practically would be the inconvenience of having the light issuing from these clusters, tempered by ground glass being interposed?—I should object to the interposition of ground glass, simply from the loss which you would sustain in the light.

2252. Supposing that a large room had such an amount of light clustered together in the ceiling, that its intensity would be inconvenient, if not softened by the interposition of ground glass, what would be the effect of the ground glass on the lighting, supposing there was a sufficient quantity of light to produce a certain amount of illumination?—It would soften the light; it would effectually secure you from any of the products of combustion by any possibility entering the apartment lighted; but the course I should take would be to use less light, and use it naked, rather than a large quantity of light, and then cut off a portion by the interposition of such a material.

2253. Have you seen the contrivance adopted in the House of Commons at present for lighting?—Yes; I was in the House of Commons on Tuesday night.

2254. Instead of having those horizontal rings of an opaque substance, what inconvenience would arise if the intensity of the light, which is required for reflection from the coves above the light, were softened by having ground glass placed beneath them?—It would be simply a question of the loss of so much light; a question of the quantity of light lost in passing through the ground glass.

2255. Would it not be a simple question of experiment, removing one of these opaque collections of rings and substituting ground glass?—Yes, I presume so.

2256. Must not the fact of the light being intercepted from the House by these rings, and merely reflected by the space between the rings, have the effect of absorbing a much greater portion of light than the interposition of ground glass?—I am not sufficiently conversant with the arrangement of that pendent screen, if I may so call it, to give an opinion about it.

2257. That screen or collection of rings which now surrounds the lights in the House of Commons is subject to the inconvenience, when any sudden increase of heat takes place, of expansion, and there is a cracking disagreeable noise; ground glass placed beneath in some

convenient form, or in some ornamental form, would not be subject to any inconvenience of that sort?—No.

2258. CHAIRMAN.] How are the lights which you have described lighted?—In the case of the horizontal light a small jet of gas is always burning, so that, when the large supply is turned on, it instantly lights it; it flashes at once.

2259. Do you mean that all these burners are alight?—No, I am speaking of the light over the orchestra; that large sun-burner is lighted by means of a small jet of gas being always burning, so that at any moment, in an instant, the larger light may be lighted by simply turning on the supply. The lights around the cornice are lighted in sections; the supply pipe is not a continuous supply throughout the building, but there is one large main supply from which there are branch sectional pipes; one pipe, perhaps, supplying 20 burners. A portion of the cove is made to open, and then by a staff the 20 lights, which have been turned on, are lighted, and the person goes to the next and turns on another section, and so lights the whole.

2260. Then, in fact, the burners round the cornice are lighted by hand, are they not?—They are.

2261. How long does that operation take?—I do not know, I am sure. I have never seen the operation of lighting them, but it cannot exceed half an hour at the very most, if so long.

2262. Mr. LOCKE.] Is the cornice broad enough for a person to walk along it?—Yes, it is possible.

2263. Do they so light them?—No; a part of the latticed work of the cove of the ceiling falls forward, forming a trap door, and then they can be easily reached from behind the cove.

2264. CHAIRMAN.] In stating the manner in which light was put to the great sun-burner, you stated that one portion was always kept just alight, and that by turning on the supply the rest became lighted; how does the light communicate from one of those rings, which you have described, to the other?—Each jet of gas is sufficiently near to the next, that, if one is lighted, it makes a train throughout the burner; it does not follow that they need necessarily touch to do that.

2265. Mr. LOCKE.] With an ordinary pressure, at what distance from the aperture may you ignite gas by simply holding a light?—The gas must come in contact with the light.

2266. The gas may be at a certain distance from the aperture: at what distance may it be?—It would depend very much upon the force at which it issues.

2267. I am speaking of an ordinary issue?—I do not know that I could answer that question with any precision; I do not know that my notice was ever particularly attracted to it.

2268. CHAIRMAN.] What is the colour of the cove, or walls, or ceiling immediately contiguous to the light?—They are white at present; the room has not been decorated; it is merely painted white.

2269. Do you consider that any advantage is derived, in the lighting of a building, from the colour of the wall?—Certainly; if that coved portion of the ceiling were ornamented with any dark colour, it would affect the quantity of light in the room considerably, from the want of reflection.

2270. So that it would absorb a good deal of light?—It would.

2271. Therefore, in order to economise light to the utmost possible degree, the surface upon which it immediately strikes must be of a reflecting colour?—Yes; white is the best.

2272. Do you imagine that a great deal of the good effect of that light is owing to the circumstance of that colour so reflecting?—No; I attribute the great effect to the light which proceeds directly from this cornice light into the building itself; the greatest portion of the effect is produced by direct light.

2273. Still you think that the colour of the room economises the light?—Certainly.

2274. The less light you can do with, the less the air will be injured?—Certainly. The cost of lighting that room, for a performance, is about £2. 12s. per night.

2275. For what length of time?—For about five hours; about 11s. to 12s. an hour.

2276. Is it the very best gas possible?—I cannot venture to say that; it is very good gas.

2277. Mr. LOCKE.] Is it the cannel-coal gas?—It is all cannel-coal gas.

2278. Then it is very good gas?—It is very good.

2279. Mr. STEPHENSON.] Are there any galleries in this room to which you allude?—There are.

2280. Does the light reach underneath the galleries effectively?—Yes, I think so, except in the first tier, which are private boxes. They have a small light behind, but I should say that the box is divided into two portions; the back portion of the box is cut off from the general light by a curtain, and in that part of the box there is a small jet of light, but that is only for the purpose of the occupants of the box, and it does not afford any light to the room.

2281. From what you have seen in the case of the Philharmonic room, are you of opinion that such a light will remove all shadow from underneath such galleries as exist in the House of Commons?—No; not all shadow. I think the lights might be so arranged in the present House of Commons that there should be no offensive shadow.

2282. Mr. GREENE.] Have you had any complaints made of the smell of the gas in the room?—Never.

2283. And are you satisfied that the whole product of combustion passes directly off, both from the lights round the cornice and from the light which lights the orchestra?—Yes. I say with great confidence, especially as to the horizontal light, that no products of combustion, from the very construction of the apparatus, can possibly enter the apartment.

2284. I understand you that there is a cone of metal over the burner?—A cone of metal over the clustered burner, over the sun-burner.

2285. How much larger is the diameter of the bottom of that cone than the diameter of the lights?—The exit-pipe for carrying off the products of combustion is only about six inches in diameter, and even that is obstructed by means of a valve. I must explain further, that that arrangement is necessaay in order to get the flames of the sun-burner to burn horizontally; for, if the full amount of draught up that central pipe were allowed, the flame would be drawn together up the tube; but when that tube is used for purposes of ventilation (and a very powerful ventilator it becomes) it is surrounded by other tubes of a much larger size; the rarefactions produced within those larger tubes by the heat of the central pipe is so great that a very powerful current rushes up those exterior tubes.

2286. You said that there was a valve in the ventilating pipe over the clustered lights?—Yes.

2287. What acts upon that valve?—It is simply a circular disc, supported on an axle, which can be either turned in a vertical position in the pipe, or in a horizontal one, so that the quantity of draught in that pipe can be regulated by the position in which that disc of metal is placed.

2288. When that valve is closed, how are the products of combustion from the great light carried off?—It never is closed; it is only that the current is moderated; but, even if it were closed, the products of the combustion would escape over the edge of the cone, and immediately flow up the surrounding tubes; they are concentric tubes, the burner being in the centre; then around the central pipe, or cone, which contains the burner, is placed a larger cylinder; and around that a still larger cylinder. These arrangements are necessary to secure the building from fire; they are introduced not simply for the purposes of ventilation, but also for protection.

2289. CHAIRMAN.] In what way?—To prevent the heat of the central portion from being communicated laterally to the ceiling in which it is placed.

2290. You spoke of a central tube; is that a conduit for the egress of rarefied air, or is it the tube which conveys gas to the sun-burner? I am speaking of the tubes of egress, the tubes which carry off the products of combustion.

2291. Mr. LOCKE.] I understand you, that that tube becomes so hot that you, as a matter of precaution, surround it by another cylinder?—Yes.

2292. And you again surround that by a still larger cylinder?—Yes.

2293. And all that for the purpose of preventing any danger arising from the over-heating of the inner tube?—Yes; and it affords at the same time an immense amount of ventilation.

2294. CHAIRMAN.] That is increased or decreased by means of a valve?—Yes; it can be so regulated.

2295. How near is the sun-burner to these tubes?—The sun-burner is the termination of the tubes; it is at the end of the tubes.

2296. You have just drawn upon paper a tube with a bell mouth, surrounded by other tubes?—Yes.

2297. Those are for carrying away the rarefied air, and the products of combustion?—They are.

2298. Is the sun-burner actually in the mouth of the tube which you have drawn with that bell mouth?—It is.

2299. Mr. LOCKE.] Can you state the temperature to which the products of combustion often rise in passing off?—In some cases the cone, the internal portion of that arrangement, is a dull red.

2300. CHAIRMAN.] You stated in one of your answers previously, that you were not so accurately acquainted with the means there employed for ventilation as to give an account of it to the committee?—I cannot.

2301. Can you tell the committee where the air enters the room for the supply that is taken out by these pipes?—Yes, I can state that.

2302. Where?—All along the walls; at the sides of the room.

2303. Are they perforated?—Yes; perforated zinc is introduced into the sides of the room, at about five feet from the level of the floor.

2304. How near is that to the places where people sit?—Within three or four feet.

2305. Is it above or below?—Rather above the heads of the persons seated.

2306. And those perforated zinc plates are the places through which the air enters to replace the air that is taken out in the manner which you have described?—Yes.

2307. That is cool air, or warm air, as the case may require?—As the case may require.

2308. You cannot tell the committee what the chambers are below, nor the principle which is adopted?—No; I rather think that the heating apparatus consists of pipes laid in the cavity of the wall, under these openings.

2309. Have you examined the method of lighting the House of Commons sufficiently to give any opinion upon it?—Only what I have seen from the gallery of the House.

2310. What is your opinion of it; is that a better way of lighting the House than the one which you have described, or in what way would you light the House of Commons, supposing it were placed in your hands?—I have no difficulty at all in saying that the House of Commons might be lighted very differently from what it is; I think it is an unfortunate attempt at lighting, I confess, and I should light it on the principle of the cornice lights, which I have been describing, by carrying a light round the lower part of the inclined portion of the ceiling.

2311. Will you have the goodness to state to the committee your objections to the system of lighting now pursued?—Simply its inefficiency.

2312. That it does not give sufficient light?—I think not.

2313. Is that your only objection?—And it appears to me unsightly.

2314. Mr. LOCKE.] Are you speaking of the recently introduced lighting?—The lighting that I found there on Tuesday night.

2315. Sir D. NORREYS.] Are you aware that the quantity of gas

(*Continued on last page but one.*)

Share List.

(Directors and Managers of Gas Works are earnestly requested to enable us to rectify any errors and fill up the omissions in the following List.)

The Companies whose names are printed in italic type are incorporated by Act of Parliament.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£	**ENGLAND.**	£ s. d	£ s. d	£ s. d
		Aberdare			
		Aberystwith			
		Abingdon			
		Accrington £7000		5 0 0	
		Albrighton			
		Alcester			
		Alford, Lincolnsh.			
		Alfreton			
		Alnwick			
		Alston Moor			
250	10	Alton	10 0 0	5 0 0	10 0 0
800	5	Altrincham	5 0 0	6 0 0	
		Amlwch			
160	10	Ampthill	10 0 0	5 0 0	10 0 0
350	10	Andover	10 0 0	6 0 0	11 0 0
		Appleby			
		Arundel			
		Ashbourn, Derby			
		Ashburton			
		Ashby-de-la-Zouch			
		Ashford, Kent			
1600	25	*Ashton-under-Lyne*	25 0 0	10 0 0	52 0 0
		Atherstone			
		Axminster			
200	20	Aylesbury	20 0 0	5 0 0	21 0 0
		Aylsham, Norfolk			
		Bacup, Lancashire			
		Bakewell			
		Baldock			
140	25	Banbury	25 0 0	10 0 0	50 0 0
		Bangor			
500	5	Barking, Essex	4 10 0	5 11 0	5 0 0
250	10	Barnard Castle	10 0 0	5 10 0	10 15 0
		Barnet			
		Barnsley £6000		7 10 0	
100	20	Barnstaple	20 0 0	5 0 0	23 0 0
		Barton			
120	25	Basingstoke	25 0 0	8 0 0	28 0 0
2400	20	*Bath*	16 0 0	6 0 0	25 to 30
		Battle £2000		6 0 0	
56	26½	Bawtry	26 10 0	5 0 0	25 0 0
		Beaumaris			
		Beccles, Bungay, and Lowestoft			
300	30	Bedford	25 0 0	4 0 0	20 0 0
		Bedworth			
		Belford			
		Bedale, Yorkshire			
		Belper			
		Beminster			
		Berkhempstead			
700	5½	Berwick-on-Tweed	5 10 0	6 8 0	5 15 0
		Beverley			
		Bewdley			
280	10	Bideford	10 0 0	6 0 0	10 10 0
		Biggleswade			
160	10	Bicester	10 0 0	5 0 0	10 0 0
		Bilston £15,100		7 0 0	
		Billericay			
		Bingley £7400		4 0 0	
		Birkenhead £70,000	35 0 0	3 0 0	35 to 37
2400	50	*Birm. & Staffordsh.*	50 0 0	10 0 0	103 to 105
	25	*Ditto*, new shares	7 10 0	10 0 0	12 pm.
928	75	*Birmingham*	75 0 0	10 0 0	155 to 158
		Bishop's Auckland			
140	25	Bishop's Stortford	25 0 0	5 0 0	24 0 0
		Blackburn £30,000		10 0 0	
		Blackpool			
		Blandford			
		Blythe			
		Bodmin			
		Bognor			
		Bolton £38,582		9 19 5	
		Boroughbridge			
		Boston £8000		10 0 0	
200	10	Bourn	10 0 0	5 0 0	
		Brackley			
		Bradford, Wilts			
		Bradford, Yorksh. £45,000		9 10 0	
		Brampton, Cumb.			
		Brandon, Suffolk			
		Brecon			
		Bridge-end, Glam.			
		Brierly Hill			
		Brighouse			
2250	20	*Brighton*	20 0 0	5 0 0	15 to 16
1125	20	,, new shares	16 0 0	5 0 0	10 to 12
		Brighton and Hove £50,276		3 10 0	
4250	20	*Bristol*	20 0 0	9 0 0	37 0 0
1725	25	*Bristol and Clifton*	25 0 0	6 0 0	34 0 0
		Brixham			
		Braintree			
750	50	*Brentford*	50 0 0	5 10 0	48 to 50
800	25	,, new shares	11 0 0	5 10 0	11 0 0
		Brentwood			
200	30	*Bridgwater*	30 0 0	5 0 0	30 0 0
400	10	Bridlington	10 0 0	5 0 0	10 0 0
		Bridport			
		Brigg			
		Broadstairs			
100	50	Bromley, Kent	50 0 0	6 0 0	52 10 0
		Bromsgrove			
		Broughton			
120	10	Bruton	10 0 0	4 0 0	8 0 0
		Brynmawr			
160	25	Buckingham	25 0 0	5 0 0	25 0 0
		Bungay (see Becls.)			
		Burford			
		Burnley £19,946		4 10 2	
		Burslem & Tunstall			
		Burton-on-Trent			
		Bury, Lanc. £6570			
		Bury St. Edmund's		5 0 0	
200	10	Buxton	10 0 0		
		Callington			
		Calne, Wilts			
		Camborne			
		Cambridge £34,560		7 0 0	
240	50	*Canterbury*	50 0 0	6 0 0	61 to 63
240	25	*Ditto*, second issue	25 0 0	6 0 0	30 to 31
		Cardiff £12,000		7 10 0	
		Carmarthen			
		Castleford			
		Chapel on the Frith			
		Chard			
		Chatteris			
		Cheadle			
		Chelmsford			
		Cheltenham £18,732		8 10 0	
		Chepstow			
		Chertsey			
230	10	Chesham, Bucks	10 0 0		
		Chester			
		Chester-le-Street			
		Chesterfield £13,123		4 17 6	
240	25	Chichester	25 0 0	6 0 0	30 0 0
		Chippenham			
		Chipping Norton			
		Chirk			
		Chorley			
		Christchurch			
		Chudleigh			
		Cirencester			
		Cleckheaton, York.			
		Clitheroe			
		Cockermouth			
		Colchester			
		Collumpton			
		Colne, Lancashire			
		Coleford, Gloucest.			
		Coggeshall			
		Congleton £5000		5 0 0	
		Cowbridge			
		Corsham			
800	25	*Coventry*	25 0 0	6 0 0	24 to 25
		Cowes			
		Crewkerne			
		Crowland			
		Croydon £20,000		5 0 0	
		Cranbrook £1900		5 0 0	
		Crayford & Bexley			
		Crediton			
		Crewe, Cheshire			
		Cricklade			
		Dalton			
		Darlaston			
		Darlington			
250	20	Dartford	20 0 0	7 10 0	27 0 0
		Dartmouth			
125	20	Daventry	20 0 0	6 0 0	24 8 0
		Dawley, Salop			
		Dawlish			
		Deal			
		Dedington			
500	6	Denbigh	6 0 0	5 0 0	6 0 0
820	10	Deptford	10 0 0	5 0 0	1 to 2
325	50	*Derby*	50 0 0	10 0 0	78 0 0
90	20	Dereham (East)	20 0 0	4 10 0	
1000	5	*Dewsbury*	5 0 0	10 0 0	8 12 6
		Devizes			
4000	5	*Devonport*	5 0 0	6 0 0	6 5 0
280	25	Dorchester	25 0 0	5 0 0	30 0 0
120	25	Dorking	20 10 0	5 0 0	21 10 0
		Douglas, Isle of M.			
209	56½	*Dover*	56 10 0	5 15 0	71 to 72
		Downham			
		Driffield			
		Droitwich			
600	20	*Dudley*	20 0 0	4 0 0	20 to 22
		Droylsden			
		Dunmow			
		Dunstable			
		Durham			
276	9	Dursley, Gloster	9 0 0	5 10 0	8 0 0
300	10	Eastbourne			
		East Grinstead			
		Elland			
		Ellesmere			
		Eltham			
		Emsworth			
		Enfield			
300	19	Epsom and Ewell	19 0 0		
		Evesham			
		Exeter £40,000		10 0 0	
		Exmouth £8000			
		Eye, Suffolk			
		Fairford			
64	25	Fakenham	25 0 0	5 0 0	25 0 0
		Falmouth			
		Fareham			
120	25	Farnham	25 0 0	10 0 0	42 0 0
		Farringdon			
		Faversham			
		Filey			
		Fleetwood			
300	10	Folkestone	10 0 0	10 0 0	15 0 0
240	10	,, new shares	8 0 0	10 0 0	13 0 0
		Fowey			
240	5	Framlingham	5 0 0	5 0 0	5 0 0
		Frome			
		Garstang			
		Gillingham, Dorset			
		Glastonbury			
		Glossop £10,000		9 0 0	
1000	25	*Gloucester*	25 0 0	7 10 0	28 0 0
		Gomersal			
		Godalming			
		Gorleston & South-Gosport [down			
		Grantham			
1000	20	Gravesend	20 0 0	5 0 0	21 0 0
		Grays (Essex)			
1000	10	*Great Grimsby*	8 0 0	8 0 0	12½ to 13½
	25	Guildford	25 0 0	4 0 0	20 0 0
		Guisborough			
		Hadleigh			
		Hales Owen			
300	6	Halesworth	6 0 0	7 10 0	5 10 0
600	25	*Halifax*	25 0 0	10 0 0	48 0 0
		Halstead			
		Hampton Court			
		Harrogate £10,000		5 0 0	
		Harrow on the Hill			
	5	*Hartlepool* £15,137	5 0 0	7 10 0	7 5 0
		Haslingden, Lanash			
330	50	Hastings and St. L.	50 0 0	6 0 0	60 0 0
		Havant			
		Haverhill			
		Haworth, Yorks.			
		Hayle			
		Hebden Bridge			
		Helstone			
		Hemel Hempstead			
300	10	Henley-on-Thams.	10 0 0		
		Hereford £5300		4 0 0	
		Herne Bay			
270	10	Hexham	10 0 0	7 0 0	12 0 0
		Heywood £10,000		5 0 0	
		Highworth (Wilts)			
230	10	Hinckley	10 0 0	5 0 0	7 0 0
		Hindley, Lancash.			
		Hitchen			
		Hythe			
		Hoddesden			
		Holbeach			
		Holmfirth £8880		3 10 0	
		Holyhead			
		Holyweli (see Brit. Provincial)			
		Honiton			
		Horbury			
		Horncastle			
		Horsforth			
		Horsham			
	10	Houghton-le-Sprg.	10 0 0	8 0 0	
		Howden			
		Hull, Sculcoats (see British Provin.)			
		Hull, £11,712. 10s.		5 0 0	
210	10	Hungerford	10 0 0	5 0 0	10 0 0
		Huddersfield			
520	5	High Wycombe	5 0 0	6 0 0	6 16 0
		Idle and Eccleshill			
		Ilkeston			
		Ilminster			
		Ilford			
		Ilfracombe			
		Ironbridge			
1400	10	*Ipswich*	10 0 0	8 0 0	15 0 0
1400	10	,, new shares	7 10 0	8 0 0	12 10 0
800	25	*Isle of Thanet*	20 0 0	5 0 0	20 to 21
		Kendal £9100		8 15 0	
		Kenilworth			
		Keswick			
100	25	Kettering	25 0 0	5 0 0	25 0 0
		Kiddermins. £10000		5 0 0	
		King's Langley			
		Kington, Hereford			
		Kirkby Lonsdale			
		Kirkham, Lanc.			
		Knighton			
		Knutsford			
		Lancaster			
		Llanelly £3000		5 0 0	
		Llandovery			
		Leamington Priors £22,500		6 0 0	
		Leatherhead			
		Ledbury			
		Leeds Old Comp. old stk., £60,300		10 0 0	
		new ,, £23,775		6 0 0	
		Leeds New £60,000		10 0 0	
		Leek			
		Leicester £36,230		7 0 0	
		Leigh			
135	20	Leighton Buzzard	20 0 0	5 0 0	
		Leominster			
		Leyburn, Yorksh.			
		Liskeard			
330	25	Lewes	25 0 0	5 0 0	25 0 0
		Lincoln £8000		10 0 0	
		Leyland, Lancash.			
		Littlehampton			
250	20	Lichfield	20 0 0	10 0 0	30 0 0
		Liverpool United	100 0 0	10 0 0	232 to 234
		,, ¼ sh.	25 0 0	10 0 0	58 to 59
		Langport			
		London Comps.—			
5000	10	Anglo-Romano	2 10 0		
5000	20	British Provincial (Holywell, Hull, Norwich, Potteries, Trowbridge)	20 0 0	7 0 0	22 to 23
	20	,, Prov., new	16 0 0	7 0 0	18 to 19
4000	25	*Commercial*	25 0 0	6 0 0	29 to 30
2000	25	,, new shares	2 10 0	6 0 0	par to 2pm
		,, deb. £12,000			
12,000	50	*Chartered*	50 0 0	4 0 0	38¼ to 40
6000	50	,, new shares	10 0 0	4 0 0	7¼ to 7½
2000	150	*City of London*	150 0 0	4 0 0	125 to 130
4000	50	*Equitable*	50 0 0	2 10 0	27 to 28
		,, deb. £16,000			
10,000	20	European— (Amiens, Boulogne, Caen, Havre, Nantes, & Rouen)	20 0 0	5 0 0	13 to 15
		,, do. new	7 10 0	5 0 0	9 to 10

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
15,000	10	*St. Cuthl. Consumers* deb. £66,000	10 0 0	7 10 0	12 to 13½
		Impl. Continental —First capital (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam)	42 0 0	6 11 0	48 to 50
7000	50	Second capital—(Aix la Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Marseilles, Toulouse Vienna)	41 0 0	10 7 0	70 to 72
	50	Third capital	43 10 0	9 4 0	68 to 70
10,000	50	*Imperial*	50 0 0	6 0 0	84 to 86
3000	50	„ new shares	45 0 0	6 0 0	80 to 82
		„ deb. £50,500			
4000	40	*Independent*	40 0 0	6 0 0	46 to 47
3000	50	*London*	50 0 0		5 0 0
6000	25	„ preference	25 0 0	6 0 0	25 0 0
3000	50	„ 2nd do.	50 0 0		15 to 18
9000	50	*Phœnix*	49 0 0	3 10 0	27 to 28
1000	100	*Ratcliff*	90 0 0	5 0 0	70 to 75
4000	25	*South Metrop.*	25 0 0	5 0 0	21 to 23
7000	10	Surrey Consumers'	10 0 0	7 0 0	10 0 0
9000	50	United General—(Cork, Dublin, Limerick)	50 0 0	2 0 0	20 to 22
6400	20	Western A shares	20 0 0	2 0 0	10 0 0
3500	20	„ B „	10 0 0	2 0 0	
		Lostwithiel			
		Loughborough			
240	25	*Louth*	25 0 0	6 0 0	26 10 0
		Lowestoft (see Bec. Llangollen			
611	5	Ludlow Union	5 0 0	6 0 0	5 0 0
		Luton			
		Lutterworth			
		Lyme Regis			
		Lymington			
		Malmesbury			
		Macclesfield 32,000		3 15 0	
		Maidenhead			
300	50	*Maidstone*	50 0 0	10 0 0	90 0 0
		Maldon			
		Marlborough			
		Malton (New)			
		Malvern			
		Manningtree			
		Mansfield £5000		10 0 0	
		March			
		Margate (see I. of T.			
		Market Drayton			
132	25	Market Harboro'	25 0 0	6 0 0	30 0 0
		Market Raisin			
		Market Weighton			
		Marlow			
370	10	Maryport	10 0 0	6 0 0	12 0 0
		Matlock			
		Melksham			
		Melton Mowbray			
		Merthyr Tydvil			
		Mere			
		Middleton £2033		5 0 0	
		Midsummer Norton			
		Middlesboro'			
		Mildenhall		5 0 0	
700	10	Mitcham	10 0 0	10 0 0	14 10 0
		Mold			
700	10	Monmouth	10 0 0	5 0 0	
		Monk Wearmouth			
		Moreton in Marsh			
		Morley (nr. Leeds)			
		Mottram			
		Morpeth			
		Nantwich			
		Neath			
		Needham Market			
		Newark £5000		10 0 0	
250	20	Newbury	20 0 0	5 0 0	20 0 0
13,000	5	Newcastle & Gateshead Union	5 0 0	8 0 0	7 15 0
		Newcastle-under-Lyne	£6200	4 0 0	
600	5	Newmarket	5 0 0	6 0 0	5 0 0
		Newnham, Glost.			
		Newent			
		New Mills £2115			
		Newport, M. £11720		8 0 0	
320	50	*Newport, Isle of W.*	38 0 0		5 0 0
		Newport Pagnell			
		Newport, Salop			
		Newton Abbot			
		Newton, Lanc.			
		Northallerton			
		North Walsham			
542	20	*Northampton*	18 0 0	10 0 0	28 0 0
		Northwich			
		Norwich (see British Pro. £40,000		7 0 0	
900	50	*Nottingham*	50 0 0	10 0 0	
900	50	New shares		10 0 0	
		Nuneaton			
		Oakham			
		Oakhampton			
200	10	Odiham, Hants	10 0 0	4 0 0	10 0 0
		Oldham			
		Olney			
		Ongar			
		Ormskirk			
		Otley, Yorkshire			
		Oundle			
120	150	*Oxford*	150 0 0	8 0 0	260 0 0
		Over Darwen £8000		5 0 0	
		Padstow			
		Pately Bridge, Yrk.			
250	20	Penrith	15 0 0	6 10 0	21 0 0
		Penryn			
		Penzance			

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
	10	Petworth	10 0 0	9 0 0	14 15 0
		Petersfield			
		Pickering			
3000	10	*Plymouth*	10 0 0	10 0 0	11 0 0
		Pocklington			
		Pontefract			
		Pontypridd		4 0 0	
400	10	Poole	10 0 0	5 0 0	10 0 0
		Port Madoc			
600	50	*Portsea Island*	53 0 0	5 0 0	51 to 52
400	10	Prescott	9 0 0	4 13 4	7 0 0
3000	20	*Preston*	20 0 0	10 0 0	
		Pwllheli			
		Pudsey £12,000		5 0 0	
		Radcliff and Pilkington £9000		4 12 10	
		Ramsay, I. of Man			
		Ramsgate (see I. of T			
		Ravenglass			
1000	10	*Reading*	10 0 0	4 0 0	7 0 0
500	20	*Reading Union*	20 0 0	5 0 0	17 0 0
		Redditch			
		Redruth			
		Reigate			
		Retford (East)			
		Rhyl			
		Richmond (Surrey)			
		Rickmansworth			
		Ringwood			
		Ripon			
		Rochester and Chatham £20,000		6 0 0	
		Rochford			
		Rockingham			
		Romford			
		Ross			
245	25	*Rotherham*	25 0 0	6 0 0	39 to 40
	12½	do. Half Shares	12 10 0	6 0 0	19 to 20
		Royston			
		Ruabon			
		Rugby			
		Rugeley			
		Runcorn ... £11,000		7 10 0	
		Ruthin			
500	10	Ryde	10 0 0	6 0 0	12 0 0
		Rye			
		Romsey			
		Saddleworth			
225	20	Saffron Walden	20 0 0	3 15 0	19 0 0
		St. Austel			
		St. Asaph			
		St. Colomb			
		St. Helen's £7500		7 10 0	
		St. Helier's (Jersey)			
		St. Ives, Hunting.			
		St. Ives, Cornwall			
250	10	St. Neot's	10 0 0	8 0 0	12 0 0
		St. Peter's Port, (Guernsey)			
320	25	Salisbury	25 0 0	6 0 0	28 to 30
		Sandbach			
140	10	Saxmundham	10 0 0	5 0 0	10 0 0
		Scarborough			
		Sedburgh			
		Selby			
		Settle			
290	10	Sevenoaks	10 0 0	5 0 0	10 0 0
		Shaftesbury			
5400	25	*Sheffield United*	24 0 0	8 6 8	27 to 27½
		Shelton, Potteries (see Brit. Prov.)			
		Shepton Mallet			
		Sherborne			
2914	5	Shields (Tynemth.	5 0 0	3 0 0	5 0 0
		Shields (South)			
		Shiffnal, Salop			
1000	5	*Shipley*	5 0 0	6 0 0	7 10 0
		Shipston-on-Stour			
		Shoreham			
		Shrewsbury £10,000		7 0 0	
400	10	Skipton	10 0 0	4 0 0	11 0 0
		Sleaford			
250	10	Slough	10 0 0		
		Snaith			
		Soham			
		Southwold			
		South Molton			
1000	50	*Southampton*	32 0 0	5 0 0	
		Sowerby, Yorksh.			
		Spittal (Berwick-on-Tweed)			
		Spilsby			
		Staindrop			
		Stretford			
		Stokesly			
		Stafford £10,000		5 0 0	
		Staines and Egham			
		Staley Bdg. £15,000		10 0 0	
		Stamford £11,250		3 0 0	
840	9½	*Stockton-on-Tees*	9 10 0	9 0 0	8 0 0
960	10	Stoke-upon-Trent	10 0 0	7 0 0	12 10 0
500	10	„ new shares	8 0 0	7 0 0	10 0 0
		Stone, Stafford			
		Stoney Stratford			
		Stourbridge			
		Stowmarket			
150	20	Stratford-on-Avon	20 0 0	7 10 0	30 0 0
		Stroud			
169	10	Swaffham	10 0 0	5 0 0	5 10 0
		Swansea £9000			
		Sudbury			
		Sunderland, old			
6400	5	*Sunderland*, new	5 0 0	5 0 0	5 5 0
		Sutton (Surrey)			
250	10	Sutton-in-Ashfield	10 0 0		
		Swindon			
		Sydenham			
2800	5	*Taunton*	5 0 0	6 0 0	
		Tadcaster			
		Tamworth			
		Tavistock			
		Teignmouth			
		Tenbury			

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
		Tenby			
150	10	Tenterden	10 0 0	4 0 0	8 0 0
		Tetbury, Gloster.			
		Tewkesbury			
		Thame			
		Thetford			
		Thirsk			
		Thornbury			
		Thorne			
		Tiverton			
670	5	Todmorden	3 0 6		
		Topsham			
		Torquay			
		Torrington, Devon			
		Totnes			
		Totnes Consumers			
4000	5	Tottenham	3 10 0	8 0 0	3 10 0
		Towcester			
		Town-Malling			
200	10	Tring	10 0 0	5 0 0	10 0 0
		Trowbridge (see British Provin.)			
75	50	Truro	50 0 0	2 0 0	
		Tunbridge			
		Tunbridge Wells			
		Ulverston			
		Uppingham			
240	5	Upton-on-Severn	5 0 0	5 0 0	5 0 0
		Usk, Monmouth			
		Uttoxeter			
		Uxbridge			
		Ventnor			
1000	25	*Wakefield*, old capl	25 0 0	6 0 0	25 0 0
1600	5	„ new „	5 0 0	6 0 0	5 0 0
		Wallasey			
300	10	Wallingford	10 0 0	5 0 0	8 0 0
		Wandsworth			
		Wantage			
		Warrington £23304		10 0 0	
100	10	Wareham	10 0 0	3 10 0	8 0 0
120	25	Warminster	25 0 0	5 0 0	27 0 0
		Warth			
		Warwick £15,000		6 0 0	
		Watford			
		Welchpool, Mntgy.			
		Wellingborough			
		Wellington, Salop		7 10 0	
		Wellington, Smrst.			
		Wells, Smrst. £5000		7 10 0	
		Westbury			
		Weston-sup.-Mare			
2000	5	West Ham	5 0 0	5 0 0	5 0 0
		Whitby			
		Whitehaven			
		Whitstable			
		Whittlesea			
		Wigan £10,160		10 0 0	
		Willenhall			
		Winchelsea			
		Winslow			
240	10	Wimborne Minster	10 0 0		
		Wimbledon			
		Wincanton			
360	50	Winchester	50 0 0	6 0 0	
900	12½	Windsor	12 10 0	10 0 0	23 0 0
		Witham			
		Witney			
4480	10	*Wolverhampton*	10 0 0	9 0 0	9 10 0
4480	10	do. new shares	1 5 0	9 0 0	3 10 0
		do. deb. £10,000			
200	10	Woburn	10 0 0	5 0 0	10 0 0
210	10	Wokingham	10 0 0		10 0 0
		Woodbridge			
		Wooler			
		Wotton-un.-Edge			
		Worcester £29,000		8 0 0	
		Workington			
		Worksop & Radford			
		Wirksworth			
		Worthing			
		Wrexham			
		Woolwich Equitbl.			
		Woolwich Consms.			
		Woolwich (North)			
		Wymondham			
		Yarm			
795	20	Yarmouth	20 0 0		17 to 18
		Yeadon, near Leeds			
		Yeovil			
		York United £55,000		7 0 0	

SCOTLAND.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
	5	Aberdeen	3 11 0		4 11 6
		Airdrie			
		Alloa			
		Annan			
		Anstruther			
		Ardrossan			
550	20	Arbroath	20 0 0	7 10 0	27 10 0
		Auchterarder			
750	2	Auchtermuchty	2 0 0	6 0 0	2 7 6
		Ayr, old			
		Ditto, new			
		Banff			
		Barrhead			
		Bathgate			
		Beith			
		Bervie			
		Biggar			
		Blairgowrie			
400	6	Borrowstowness	6 0 0	5 0 0	8 0 0
	5	Brechin	5 0 0	8 10 0	8 10 0
	2	Broughty Ferry	2 0 0	5 0 0	2 0 0
		Burntisland			
		Campbelton			
		Clackmannan			
		Coatbridge			
		Coldstream			
		Collinsburgh			
		Comrie			
		Crieff			
		Crail, Fife			

Number of Shares issued.	Amount per Share £	Name of Company.	Amount paid up per Share £ s. d	Dividend per Cent. per Ann. £ s. d	Price. £ s. d
		Cullen			
		Cumbernauld			
		Cumnock			
600	5	Cupar Angus	5 0 0	6 0 0	5 10 0
250	10	Cupar Fife	10 0 0	7 10 0	14 0 0
		Dalkeith			
		Denny			
		Dingwall			
		Dornoch			
		Douglas			
		Dumbarton			
400	20	Dumfries	14 0 0	5 0 0	20 0 0
		Dunbar			
		Dunblane			
	23⅓	*Dundee*, old £29,687	23 15 0	8 8 0	30 10 0
8000	5	*Dundee, new*	5 0 0	4 0 0	4 13 0
860	10	Dunfermline	10 0 0	6 0 0	12 12 0
		Dunkeld			
		Dunoon			
		Dunse			
		Dysart			
6000	25	*Edinburgh Gas Co.*	25 0 0	10 0 0	55 0 0
5480	25	„ *and Leith Co.*	18 0 0	7 10 0	27 13 6
		Elie			
		Elgin			
		Falkirk, old			
		„ new			
		Falkland			
		Ferry Port on Craig			
		Fochabers			
		Forfar			
		Fort William			
		Fraserburgh			
		Galashiels			
		Garliestown			
		Gatehouse n. Fleet			
		Girvan			
6000	25	*Glasgow*	25 0 0	10 0 0	51 0 0
15000	10	*Glasgow City and Suburban*	10 0 0	9 0 0	19 10 0
		Grangemouth			
		Grahamston			
		Haddington			
1500	5	*Hamilton*	5 0 0	8 0 0	7 5 0
		Hawick			
		Helensburgh			
		Huntly			
		Inverary			
400	1	Inverkeithing	1 0 0	5 0 0	1 0 0
1200	10	*Inverness Gas and Water*	10 0 0	7 10 0	15 0 0
2400	5	„ new shares	1 5 0	7 10 0	2 5 0
		Irvine			
		Jedburgh			
		Johnstone (Paisley)			
		Keith			
		Kelso		10 0 0	
		Kilmarnock			
		Kincardine			
		Kinghorn			
		Kingskittlo, Fife			
		Kinross			
		Kirkaldy			
320	5	Kirkcudbright	5 0 0	5 0 0	5 0 0
1000	3	Kirkintulloch, near Glasgow	3 0 0	5 0 0	3 0 0
227	5	Kirkwall	5 0 0	5 0 0	4 10 0
518	5	Kirriemuir	5 0 0	6 0 0	
		Lanark			
		Largo, near Leven			
		Largs			
		Lasswade, n. Edin.			
		Lauder			
		Leith			
		Leslie, Fife			
		Lesmahago			
		Leven			
		Linlithgow			
		Linton, n. Nobleh.			
		Lochee, n. Dundee			
		Lochgilphead			
		Lochwinnock, near Paisley			
1200	1	Markinch	1 0 0	7 10 0	1 5 0
		Mauchline			
		Maxwell-town, n. Dumfries			
		Maybole, Ayrshire			
		Maryhill, n. Glasg.			
		Melrose			
718	2	Mid & East Calder	2 0 0		2 0 0
192	5	Moffat	5 0 0		
	13⅓	Montrose	13 10 0	7 11 1	
		Musselburgh			
		Nairn			
		Neilston, n. Glasg.			
		Newmills, near Kilmarnock			
		Newburgh, Fife			
		Newton-on-Ayre			
		Newton Stewart			
		North Berwick, n. Haddington			
		North Queensferry			
		Oban			
		Peebles		4 16 0	
800	25	Perth	25 0 0		22 10 0
	5	„ new	5 0 0	2 10 0	4 2 6
		Peterhead			
		Pittenweem			
		Pollokshaws, near Glasgow			
		Port Glasgow			
		Portobello, n. Edin.			
		Prestonpans			
		Rutherglen, near Glasgow			
		Renfrew, n. Paisley			
		Saltcoats			
		Sanquhar			
		Selkirk			
		South Queensferry			
		St. Andrew's			
		Stewarton			
		Stirling			
		Stonehaven			
		Stonhouse, Lanrks.			
		Stornoway			
		Stranraer			
		Strathaven, near Hamilton			
		Thurso			
		Tillicoultry, n. Alloa			
800	1	Tranent	1 0 0		1 0 0
		Troon			
		Wick			
		Wigton			
		Wemyss	4 10 0		

IRELAND.

300	10	Armagh	10 0 0	8 0 0	14 10 0
		Ballinasloe			
700	80	*Belfast*	80 0 0	4 0 0	80 0 0
		Ballymena			
		Ballymoney			
		Ballynahinch			
		Carrickfergus			
		Carlow			
		Cavan			
		Cork (see Un. Gen.)			
		Cookstown			
1300	5	Clonmel Consumrs	5 0 0	5 0 0	5 0 0
		Drogheda			
19,000	10	*Dublin Consumers*	6 0 0	7 0 0	8 10 0
		Dublin Hibernian (see United Gen.)			
160	25	Dundalk	25 0 0		22 0 0
		Dungannon			
871	5	*Downpatrick*	5 0 0	4 0 0	
		Enniskillen			
		Enniscorthy			
240	25	Galway	25 0 0	10 0 0	35 10 0
		Keady			
400	10	Kilkenny	10 0 0	8 0 0	11 5 0
		Larne			
		Limerick (see U.G.)			
1725	5	Limerick Consum.	5 0 0	5 0 0	5 0 0
600	15	Londonderry	15 0 0	6 13 4	21 10 0
500	7	Lisburn	7 0 0	7 10 0	8 5 0
520	10	Lurgan	6 0 0	6 0 0	6 0 0
		Mallow			
		Monaghan			
		Nenagh			
418	5	Newtownards	5 0 0	4 0 0	5 0 0
		Newtownlimavady			
		Newry			
		Omagh			
125	20	Portadown	20 0 0	5 0 0	20 0 0
		Portaferry			
600	10	Sligo	10 0 0		
		Tipperary			
		Tralee			
		Waterford			

The Gas Works in the undermentioned towns belong to private individuals:—

Abergavenny.	Gainsborough.	Hunmanby.	New Ross.	Pontypool.	Sidmouth.	Wem.
Bridgenorth.	Goole.	Huntingdon.	Northfleet.	St. Alban's.	Sittingbourne.	Wexford.
Carnarvon.	Harleston.	Hyde (Cheshire)	Newport I. W. (new).	Sandwich.	Spalding.	Weymouth.
Chester (new).	Hatfield.	Kingston-on-Thames.	Oswestry.	Seaham Harbour.	Waltham Abbey.	Whitchurch (Salop).
Ely.	Hertford.	Lynn.	Peterborough.	Sheerness.	Ware. (2 works)	Wisbeach.
Farsley.	Holt.					

The Gas Works belong to the Corporations, or to Commissioners acting under special acts of Parliament, in the following towns:—

Carlisle.	Greenock.	Knaresborough.	Milton (Kent).	Rothesay.	Southport (Lanc.)	Walsall.
Cashel.	Haverfordwest.	Lytham (Lanc.)	Paisley.	Richmond (Yorkshire).	Stockport	Wells (Norfolk).
Coleraine.	Keighly.	Manchester.	Rochdale.	Salford.	Strabane.	Youghall.
Doncaster.						

Price Current.

CASTINGS, per Ton.

Average Weight of Cast Iron Gas Pipes, per Yard.

1½ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London. £ s. d.	Glasgow £ s. d.	Newcastle. £ s. d.	Wales. £ s. d.	Yorksh., Derbysh., and Staffrdsh. £ s. d.
Pig Iron, No. 1	4 0 0	2 15 0	3 15 0	4 10 0	4 10 0
1¼ and 2 inches Socket Pipes	7 5 0	6 10 0	6 5 0	6 15 0	6 10 0
2½ and 3 do. do.	7 0 0	6 5 0	5 15 0	6 10 0	6 0 0
4 and 5 do. do.	6 15 0	6 0 0	5 10 0	6 5 0	5 15 0
6 inches and upwards do.	6 10 0	5 15 0	5 5 0	6 0 0	5 10 0
Extra for bends, branches, and connection	2 10 0	2 10 0	2 10 0	2 10 0	2 10 0
Retorts, 2nd fusion, hot blast	6 10 0	5 10 0	5 0 0	6 0 0	5 5 0
Do. 2nd fusion, cold blast	7 0 0	..	5 10 0	6 10 0	5 15 0
Tank Plates, ⅜ thick and above	6 10 0	5 15 0	5 5 0	6 0 0	5 10 0
Do. less than ⅜	7 0 0	6 5 0	5 15 0	6 10 0	6 0 0
Plain Castings ex. models	6 15 0	6 0 0	5 10 0	6 5 0	6 15 0

COALS.

NEWCASTLE. Unscreened.	s.	d.	
Whitwell Primrose	4	6	per ton.
Burnhope	5	9	„
Dean's Primrose	5	9	„
Pelton	6	0	„
Brancepeth	6	0	„
Medomsley	6	0	„
Pelaw	6	3	„
Eighton Moor	6	6	„
Felling Main	6	6	„
New Pelton	6	6	„
Peareth	6	6	„
South Pelaw	6	6	„
Waldridge	6	6	„
Washington Hutton	6	6	„
South Peareth	6	6	„
Ramsay's Cannel	12	0	„
Cowen's Cannel	12	0	„

DERBYSHIRE.			
Clay Cross, Deep Main, and New Birchwood	6s.6d.	per ton.	
SCOTCH CANNEL.			
Boghead at Leith	21	0	„
Kirkness best	23	0	„
Capeldrae, first quality	20	0	„
Ditto, second quality	10	0	„
Lothian	16	0	„
Lesmahago at Glasgow	16	0	„
Ditto at Leith	17	6	„
Arniston	16	0	„
Wemyss	14	0	„
Donibristle	10	6	„
Bridgeness	11	0	„
Kinneil	11	0	„
Knightswood	10	0	„
Lochgelly	9	6	„
Lumphinan	9	6	„

FIRE GOODS.

Best Bricks, 50s. per 1000, at Newcastle.
Do. Clay, 12s. per ton do.

LEAD.

Soft pig, £25 to £26 per ton.

WROUGHT IRON TUBING, subject to 25 per cent. Discount.

	2 inches. s. d.	1½ inch. s. d.	1¼ inch. s. d.	1 inch. s. d.	¾ inch. s. d.	½ inch. s. d.
Patent welded tubes, from 2 to 12 feet, per foot	1 8	1 0	0 10	0 7	0 5	0 4½
Ditto „ 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting pieces, or long screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, springs, and elbows, wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing sockets, caps, plugs, and nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain sockets	1 0	0 8	0 7	0 5	0 4	0 3
Flanches	1 9	1 6	1 3	1 0	0 9	
Syphons, 2 quart	15 0	14 0	13 6	13 0	12 0	
Ditto 1 quart	11 6	10 6	10 3	10 0	9 6	

FREIGHTS, per Ton.

Coastwise—Newcastle.	s.	d.
Chatham & Roches.	7	9
Cork	11	0
Dover	8	6
Dublin	11	0
Exeter Quay	11	6
Folkestone	8	6
Hastings	12	0
Ipswich	7	3
Jersey	11	0
London	7	6
Lowestoft	6	0
Lynn	6	9
Margate	8	6
Portsmouth	10	6
Plymouth	11	0
Southampton	10	0
Weymouth	9	6
Yarmouth	5	9
Foreign.		
Boulogne	9	0
Barcelona	18	0
Bordeaux	15	0
Calais	9	0
Dieppe	10	6
Hamburg	9	6
Havre	11	0
Leghorn	17	9
Lisbon	14	0
Rotterdam	8	9
Rouen	14	0
St. Petersburgh	12	0
Stettin	10	6
Trieste and Venice	23	0

(*Continued from page* 123.)

which was turned on that night was very small in comparison with the amount of gas which could be turned on if it were desirable to have a stronger light?—No, I am no judge of that; I am not at all aware what Dr. Reid's arrangements are for giving any amount of light; I only judge from what I saw.

2316. Then, in point of fact, if the amount of light which happened to be turned on on Tuesday night was only one-fourth or one-half of that which was capable of being turned on, the opinion which you have given as to the inefficiency of the mode of lighting would not hold good?—Certainly not; if it was four times the amount which I saw, it might be sufficient.

2317. Mr. Locke.] But your objection to the unsightliness would remain, I presume?—Yes.

2318. Do you think you could arrange a system of burners round the lower part of the sloped roof of the House of Commons so as to be sightly?—Yes, I think so.

2319. Sir D. Norreys.] Are you aware that that slope is of timber?—Yes.

3320. Mr. Locke.] Have you any idea of what the temperature of the air is, passing through the perforated roof in the building in Liverpool?—No; I have never tried it.

2321. You never took the temperature in those perforations?—No; it is very much diluted from the large quanity of air passing from the building itself.

2322. But you do not know what it is?—No.

2323. Should you have any apprehension as to that particular lighting of the House of Commons from any danger which would arise to the roof?—Not at all.

2324. Sir D. Norreys.] The ceiling to which your system of lighting is applied at Liverpool is, I presume, plaster?—The open work of the cove is *papier maché*.

2325. How near does that open work approach to the light?—I should think no part of it is within two feet of the lights.

2326. Mr. Locke.] Could you arrange the lighting of the present House of Commons with a distance as great as two feet, do you suppose?—I do not know; I cannot say that.

2327. Sir D. Norreys.] Generally speaking, would you not say that, for persons who have to sit for many hours together in the House of Commons, a light of sufficient intensity which could be placed as much as possible above the line of vision would be more desirable than one which would come within that line?—Certainly.

2328. And, therefore, that the nearer you can approach the centre of a high ceiling, the more you escape that line of vision?—Certainly.

2329. Mr. Locke.] Can you tell us the quantity of gas consumed per hour in the building at Liverpool; you gave us the price, namely, 11s. to 12s., but not the quantity; how many cubic feet of gas are consumed per hour for the thorough lighting of that room?—I should think 2000 cubic feet per hour, which will cost 9s., and 500 feet for the other apartments, which will cost 2s. 3d.

2330. Mr. Stephenson.] If you wanted to light the House of Commons in the same way, it would not be necessary to confine the light to the cornice at the bottom of the slope?—No.

2331. You might adopt the same system of lighting in the cornice in the square part of the House?—Yes.

2332. Chairman.] Did I rightly understand you to state that you would introduce these lights underneath the gallery of the House of Commons?—Not the galleries.

(*To be continued.*)

Advertisements.

THO! GLOVER: CLASS. 22

PRIZE MEDAL OF THE EXHIBITION. 1851

THOMAS GLOVER,

(LATE CROLL AND GLOVER,)

Begs to inform his friends, that the Royal Commissioners of the Great Exhibition of Industry of all Nations, 1851, after a most careful inquiry and testing, selected a 3000-light PATENT DRY GAS METER of his manufacture, for the purpose of measuring all the gas used in the Crystal Palace. The above Meter having performed to the entire satisfaction of the Gas Light Company, as well as to that of the Commissioners, he obtained from them a Prize Medal and Certificate, not only for correct performance, but superior workmanship.

Thomas Glover will be glad to exhibit to any one most numerous Certificates (too numerous for insertion here) in favour of the Meter he manufactures; and these include certificates from the most eminent Gas Engineers, both in this country, Europe, and America.

Thomas Glover last year regretted that he was unable to execute many of his orders with the necessary despatch; but this year he hopes that the great addition made to his Manufactory will enable him to avoid disappointing any of his friends. He also begs to state that, although the Patent under which he manufactures is of so recent a date, he has manufactured upwards of 40,000, including a large number of Station Meters.

Patent Dry Gas Meter Manufactory, Suffolk-street, Clerkenwell-green, London, Oct. 7, 1852.

N. B.—T. G., for the convenience of parties using his Meters, is prepared to repair any description of Meter at moderate cost.

H. JONES, Gas Meter Manufacturer, No. 44, OLD-STREET, St. Luke's, London, begs respectfully to call the attention of Gas Companies to his latest improvements in the WET METER, by means of which water cannot be abstracted, neither can Gas by any possibility pass through the Meter without registering.

GAS COOKING RANGE,
MANUFACTURED BY
W. BENNETT, LIVERPOOL.

These Ranges are now manufactured on a principle approved by Alfred King, Esq., Engineer of the Liverpool United Gas Works, and can be had from the Manufacturer in every size and variety.

ESTABLISHED IN 1834.

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J. B. warrants all Meters to be manufactured of the best materials and workmanship, the wheels, &c., being of metal. Old Meters repaired on the lowest terms.

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The Bank of England is fitted entirely with these Valves, from the smallest branch to the largest main pipe.

The following, among numerous testimonials, will be found very satisfactory:—

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"Gentlemen,—In reply to your inquiry, I have to state that 'Carter's Patent Gas Valve' has been used by this company and by the fitters of the district extensively for seven years past. It was adopted to obviate the inconvenience of setting fast, so prevalent with the conical metal plug-cocks, and has been found to answer the purpose intended.

"I have recommended its use in several provincial towns with which I am professionally connected, and have not received any complaint of its having failed in any respect of performing satisfactorily all that is required of it.

"I am, gentlemen, yours respectfully,
"Geddie Pearse.

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JAMES LYNE HANCOCK'S Vulcanized Indiarubber Hose Pipes and Tubing. Manufactory (and Warehouse), Goswell-mews, Goswell-road, London.

Gas Companies, Engineers, Gas Fitters, and the Trade generally, are respectfully informed this Tubing is now manufactured to any size, from ¼ inch bore and upwards, in 100-feet lengths, and perfectly cylindrical, either with or without a spiral wire inside.

VULCANIZED GLAZED FLEXIBLE TUBING, from ¼ inch up to 1 inch diameter, made in 24-feet lengths; or, covered with silk or worsted, up to 100 feet.

VULCANIZED HOSE, for FIRE ENGINES, BREWERS' USE, and for standing great pressures, (Rubber and Cloth combined), made to any length or size to fit the necessary screws, &c.

VULCANIZED INDIARUBBER AIR-TIGHT BAGS, made any size, for Gas Mains, with flexible tubes attached, and fitted with stopcocks complete.

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ELEGANT CRYSTAL GLASS CHANDELIERS, FOR GAS

(Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of GAS in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.

THEATRES, CONCERT, ASSEMBLY, AND BALL ROOMS LIGHTED BY ESTIMATE ON THE LOWEST TERMS.

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JAMES FERGUSON, Lessee of the Auchinheath Gas Coal-field (the most extensive and valuable in the parish of Lesmahago), respectfully intimates to the Managers of Gas Works and Consumers of Gas Coal, that he is prepared to ship the best quality of the above well-known COALS at Glasgow or Leith; and also to deliver them at the railway stations upon, or connected with, the Caledonian Railway, to any extent which may be required.

Price, free on board, or delivered at the railway stations, may be learned by addressing James Ferguson, Gas Coal Works, Lesmahago; or J. H. Jones, 1, Poets'-corner, Westminster, sole Agent for London.

NEW INSTRUMENTS for the USE OF GAS COMPANIES.

AN APPARATUS FOR TESTING THE PRESENCE OF BISULPHURET OF CARBON IN GAS.

It has frequently been remarked by chemists that even when the acetate of lead test is applied to coal gas, and indicates perfect freedom from sulphuretted hydrogen, indications are still given during its combustion which would lead to the supposition that some other compound of sulphur exists in it. The above instrument affords positive proof that this is the case, and leaves little doubt that that compound is sulphuret of carbon. This test will detect the presence of sulphur in whatever form it may exist, and is much more delicate than the acetate of lead test, even for sulphuretted hydrogen.

Cost of apparatus, £3. 3s.

A REGISTERING PRESSURE GAUGE.

It is important to gas companies to know the pressure at various parts of their districts during the successive hours of the night, for the better regulation of their initial pressure at the Works. This compact apparatus, capable of being placed in a space of less than one foot cube, is intended to supply this information. Price £7. 10s.

Station Meters, Pressure Gauges, Photometers, Specific Gravity Apparatus, &c.

CONSUMERS' METERS

at the List price, with a liberal discount to wholesale purchasers.

ALEXANDER WRIGHT,
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M. SHEEN, Gas and Railway Lantern Maker, 90½, Holborn-hill, begs to inform Managers of Gas Works, &c., that she continues to contract and supply Lanterns on reasonable terms, and keep them in repair by the year.

SHEARS AND SONS'
PATENT DRY GAS METERS

Are supplied to Gas Companies and the Public as the best and simplest Dry Gas Meters in use. They are acknowledged to be of first-rate workmanship and accuracy of registration.—Shears and Sons continue to supply these Meters on the most favourable terms; and they also manufacture Wet Gas Meters, to which they apply their Patent Indices.

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Station and Experimental Meters, Gas Pressure Registers, Gauges, Experimental Gasholders, Governors, Slide Valves, &c. &c.

GREAT EXHIBITION PRIZE MEDAL, AND CERTIFICATE FOR GAS METERS.
Class 22. No. 424.

PADDON and FORD, Gas Meter and APPARATUS MANUFACTURERS, FOUNDLING TERRACE, GRAY'S INN ROAD, LONDON,

Beg, respectfully, to call the attention of Gas Companies and others to their CHEAP GAS COOKING APPARATUS, the most simple and efficient yet produced. It has been found on trial to fulfil all the culinary requirements of an ordinary family—Roasting, Baking, Boiling, and Steaming, at the same time. Price 50s., subject to discount. Size, 30 inches high, 15 inches diameter.

In addition to Meters of the patent and ordinary description, P. and F. manufacture Station Meters, Governors, Experimental Apparatus, and every kind of Gas Machinery.

NEW HOUSES OF PARLIAMENT.

DEFRIES'S Gas Stoves, Ranges, and BATHS just completed for two kitchens in the above building. A great variety in stock upon the same principle. GAS BATHS from £7, by which a warm bath may be obtained for THREE HALFPENCE! Gas Cooking and Heating Stoves, for all classes, from £1. Defries's celebrated DRY GAS METERS—45,000 in use.

Testimonials at the Office, 145, Regent-street.

Manufactories removed from 10, Hampstead-road, and 67, St. Martin's-lane, to more extensive premises in the New-road, near Albany-street.

M. KELLY, Cast Iron Wharf, 31, Bankside, London.—Retorts of superior quality, Socket and Flange Pipes, Bends, Branches, Syphons, and every description of Castings for Gas and Water Works, Gasometers, Tanks, Purifiers, Condensers, &c., erected complete, or the materials supplied.

Gas Valves and Sluice Cocks on an improved principle. Patent Gas Tubing and Connections.

A stock of the above articles kept.

The Pipes and Retorts supplied by M. K. are cast vertically, which ensures soundness and equality of thickness throughout.

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IRON MERCHANT AND CONTRACTOR,
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Agent on Commission for the Purchase of Scotch Pig Iron, Railway Bars, Bar Iron, Castings, and the Sale of English Boiler Plates, Angle and Rivet Iron, Anchors, Chains, Cables, Nails, Steel, &c. &c.

TO GAS COMPANIES, GAS PROPRIETORS, AND GAS ENGINEERS.

JOHN VICKARY

begs to call the attention of the above to his improved METALLIC CASE GAS-METER, an improvement which has met with entire approbation from the various Gas Companies and Engineers to whom he has introduced it, and acknowledged to be the greatest improvement that has been made since the year 1833; at which period a metal was introduced for the construction of the Drum, Syphon, and Float, capable of resisting any impurities arising from either gas or water, which has been found to answer every expectation; as, in repair, Drums of the above date are found in perfect and good condition, when the Outer Case, Valve-box, Inlet-pipe, &c., are quite destroyed and entirely past repair.

J. V. has introduced a coating or lining of the above metal in the Outer Case, Valve-box, Inlet-pipe, &c., thereby rendering the whole as durable as the Drum, as not a particle of tin plate is exposed to the action of either water or gas; and preventing the possibility of gas passing above the water line through the front into the body of the Case to the outlet unregistered, which frequently occurs. When the Meter has been in use for any length of time it is generally found that rust or decay takes place *above* rather than under the water line, which is only discovered when they need repair. Also the Inlet-pipe and Valve-box are generally found quite decayed, which cannot happen in the above improvement.

J. V. feels confident that the above will be found a most desirable and perfect instrument, as it contains all other improvements of utility that have been introduced up to the present time.

The most strict attention is given to the workmanship as well as the registration of every Meter, to render them perfectly accurate.

Station Meters, Governors, &c., made on the shortest notice, as well as Gas Cooking Apparatus of every description, Gas Baths, &c.

Meters sent at the lowest London prices.

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Beg to inform the Proprietors of Gas Companies, and the Trade generally, that, having completed their new Gas Meter Manufactory, they are now enabled to supply, with despatch, a very superior article, and can confidently warrant the same to be equal in quality and workmanship to any Gas Meter ever made. Manufacturers of

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GAS COOKING APPARATUS, IMPROVED ALBERT,

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